VOL. LXXXV PART THREE

JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

MARCH 1960

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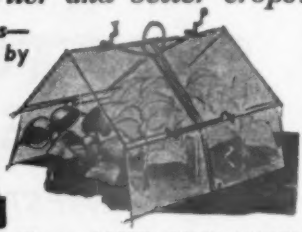

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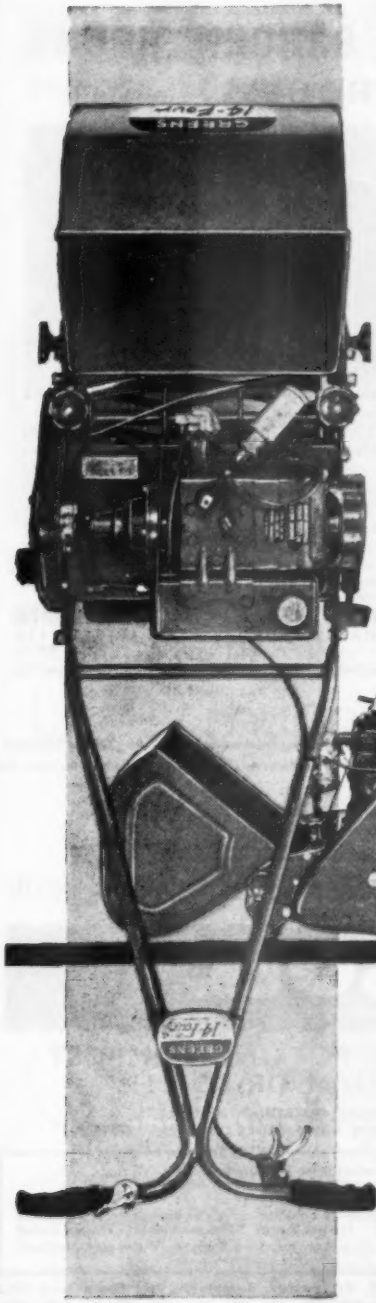

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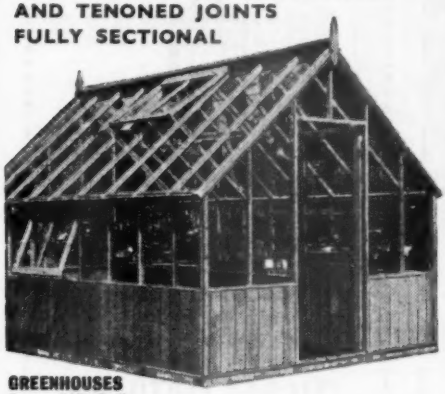

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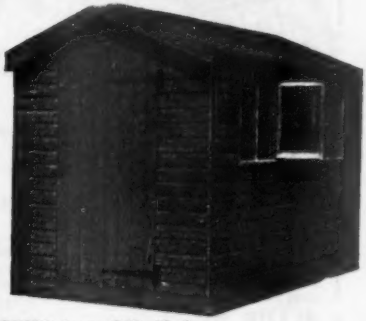

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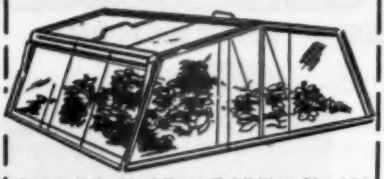

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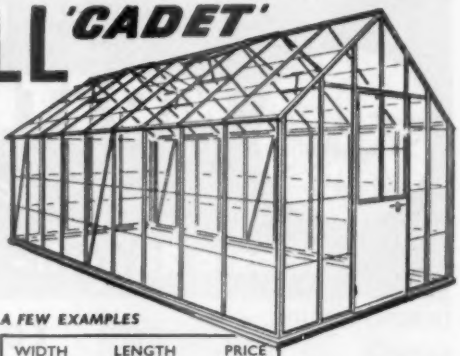

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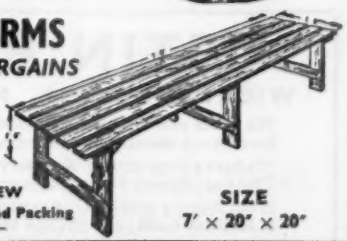

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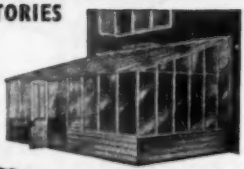

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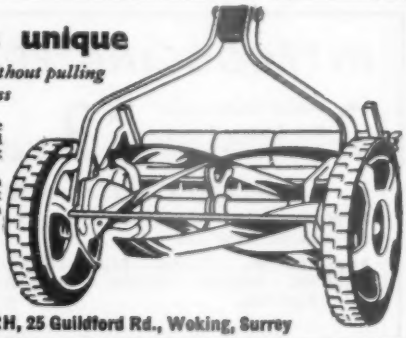

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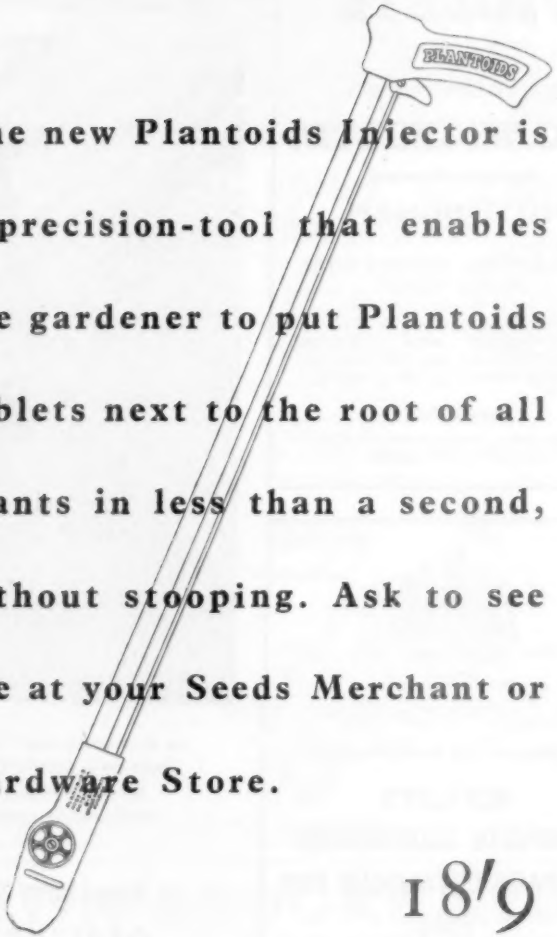

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JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY

VOL. LXXXV PART THREE

March 1960

THE SECRETARY'S PAGE

ANNOUNCEMENTS—MARCH AND APRIL

Shows

TUESDAY, March 8 12 NOON to 6. P.M. WEDNESDAY, March 9 10 A.M. to 5 P.M.	Fortnightly Flower Show, Ornamental Plant Competition and Alpine Garden Society's Competition, in the New Hall.
TUESDAY, March 22 12 NOON to 6 P.M. WEDNESDAY, March 23 10 A.M. to 5 P.M.	Fortnightly Flower Show and Daffodil Competition, in the New Hall. British Orchid Growers' Association's Show, in the Old Hall.
TUESDAY, April 5 12 NOON to 6 P.M. WEDNESDAY, April 6 10 A.M. to 5 P.M.	Fortnightly Flower Show, Rhododendron Competition, Camellia Competition and Sewell Medal Alpine-house and Rock-garden Plant Competition for Horticultural Traders, in the New Hall.
TUESDAY, April 12 12.30 P.M. to 6 P.M. WEDNESDAY, April 13 10 A.M. to 5 P.M.	Daffodil Show in the New Hall.
WEDNESDAY, April 20 12 NOON to 6 P.M. THURSDAY, April 21 10 A.M. to 5 P.M.	Fortnightly Flower Show in the New Hall. Alpine Garden Society's Show and (on April 20 only) National Auricula and Primula Society's Competition, in the Old Hall.

Lectures

TUESDAY, March 8, at 3 P.M. "Flower Photography", by MR. J. E. DOWNWARD, F.I.B.P.

TUESDAY, March 22, at 3 P.M. "Bulbous Plants in Grass", by MR. W. M. CAMPBELL, N.D.H., V.M.H.

TUESDAY, April 5, at 3 P.M. "Alpine Plants in Pots", by MR. R. C. ELLIOTT.

WEDNESDAY, April 20, at 3 P.M. "The Shaping and Pruning of Fruit Trees", by MR. A. P. PRESTON.

Demonstrations at Wisley—The following demonstrations will be given at Wisley, that on the second day being in each case a repetition of that given on the first.

March 2–3. Seed Sowing and Vegetative Propagation of Alpines (Commencing at 2 P.M.)

March 16–17. Pests and Diseases of Fruit Trees: Recognition and Methods of Control. (Commencing at 2 P.M.)

Daffodil Competition—The annual Daffodil Competition, intended for those who live in early districts, will be held at the Fortnightly Show on March 22 and 23. For the Schedule, application should be made to the Secretary.

Camellia Competition—The annual Camellia Competition will be held in conjunction with the Fortnightly Show on April 5 and 6. The Schedule may be obtained on application to the Secretary.

Alpine-house and Rock-garden Plant Competition—At the Fortnightly Show on April 5 and 6 there will be a Competition for alpine-house and rock-garden plants shown by horticultural traders.

The Restaurant at Wisley—The Restaurant in the Gardens will be open at the following times during 1960:

April 3 to October 2 (excluding Good Friday)

Weekdays: 10.30 A.M. to 5.30 P.M. (or sunset, whichever is the earlier).
Sundays: 2 P.M. to 5.30 P.M. (to last Sunday in September).
2 P.M. to 4.30 P.M. (Sunday, October 2).

The restaurant will provide a cafeteria service of cold lunches (weekdays only), sandwiches, cakes, tea, coffee and other light refreshments. The restaurant is licensed for the service of alcoholic refreshments with meals.

Reservations for teas by large parties may be made only for Mondays (excluding Bank Holidays) to Fridays. Organizers should make arrangements, not with the Society, but direct with the caterer, Mrs. D. Badcock, The Oak Cottage Restaurant and Guest House, Shere, nr. Guildford, Surrey. (Tel. Shere 168.)

Picnicking is not allowed in the Gardens.

International Orchid Conference, 1960—The Third World Orchid Conference, which is being sponsored jointly by the American Orchid Society, the British Orchid Growers' Association and The Royal Horticultural Society, will be held in London in May and June. The first conference was held in St. Louis, Missouri, U.S.A., in 1954, and the second in Hawaii in 1957.

The exhibition of orchids arranged in connexion with the Conference will be staged at Chelsea Show on Tuesday, Wednesday, Thursday and Friday, May 24–27, and the Conference will be held in the following week on Monday, Tuesday, Wednesday and Thursday, May 30 and 31, June 1 and 2. Excursions to leading orchid growers' establishments will be arranged on Friday and Saturday, May 27 and 28 and on Friday, Saturday and Sunday, June 3, 4 and 5.

A joint committee of the three sponsoring bodies has arranged a comprehensive programme covering a wide range of subjects of interest to amateur and professional orchid growers, and orchid specialists from Australia, Belgium, Ceylon, Colombia, England, France, Germany, Holland, Japan, Malaya, South Africa, South America, Sweden and the United States of America have accepted invitations to deliver papers.

The Programme is now available and anyone who wishes to have a copy should write to The Secretary, The Third World Orchid Conference, c/o The Royal Horticultural Society, Vincent Square, London, S.W.1.

Joint Rock-garden Plant Committee Meeting in Edinburgh—The Joint Rock-garden Plant Committee will meet in connexion with the Scottish Rock Garden Club's Show in the Music Hall, George Street, Edinburgh on Tuesday, April 19. Plants for the Committee's consideration should be entered with the Secretary of the Committee by 11 A.M. that day.

Gardens open to the Public—The List of Gardens in England and Wales opening to the public under the National Gardens Scheme in 1960 may be obtained from The Organizing Secretary, National Gardens Scheme, 57 Lower Belgrave Street, London, S.W.1, price *2s. 0d.*; by post *2s. 6d.*

Gardens at Daily Mail Ideal Home Exhibition—This annual Exhibition will be held at Olympia in 1960 from March 1 to March 26. As usual the Gardens laid out in the Annexe of the Grand Hall will be one of the most attractive features of the Exhibition. Fellows and Associates visiting the Ideal Home Exhibition may obtain admission to the Gardens Annexe without further payment on any day from 10 A.M. to 1 P.M., on production of their R.H.S. tickets.

NOTES FROM WISLEY

N. K. Gould

IN a letter received in the early days of the New Year the writer asked to be given the name of the first flower of spring and added that he supposed the answer would be the snowdrop. It would, however, be a mistake to think that the name of any one plant could be given as a true reply to this seemingly simple question.

During winter, spring and summer there is a continuous succession of plants, both wild and cultivated, coming into flower in the open air, and after a mild winter it is possible to find over a hundred different kinds of flowers at Wisley in the middle of February. The order of opening varies a little from year to year, and the date of flowering of any one species depends to some extent on climatic conditions and thus in some measure upon the locality.

The concept of a first flower of spring presupposes a winter scene devoid of flower colour or scent, and it is hard to believe that there are still garden owners who are unaware of the great number of plants which will bloom out of doors between December and March without protection.

The article by MR. GRAHAM THOMAS, published in the JOURNAL three months ago, enumerates all the best trees, shrubs and herbaceous plants for "The Winter Garden" and there are probably few gardens in which places could be found for them all. But there are still plenty of bare walls and fences in small gardens which could quickly be covered with the long growths of *Jasminum nudiflorum*, most easily grown and propagated, and dependable for a vase of cut flowers during every mild spell around Christmas. Similarly there must be many gardens where a place could be found near the foot of a warm wall for a clump of *Iris unguicularis* to provide, between October and March, a succession of buds to be pulled (not cut) for opening in water indoors.

With the increase in the sun's warmth now becoming appreciable, signs of renewed activity are visible in plants in all parts of the gardens, but the brightest display of flowers will be in the alpine house. Most of the plants to be seen here are hardy in the sense that in their natural habitats they withstand low winter temperatures, but in the winter climate of the British Isles, with alternating mild and cold spells, some make precocious growth requiring protection. Some have very early flowers liable to be spoilt in the open air, and some are so small that they can only be fully enjoyed if displayed nearer to eye level. For all these reasons a large selection of alpine plants are grown in pots in unheated frames and brought into the alpine house as they come into flower. Saxifrages are in season now, and the collection includes many species and hybrids. *Saxifraga grisebachii*, a member of the Engleria section,

is very distinct in appearance, having arched flower-stems covered with crimson hairs, rising from silver-grey rosettes of leaves. *S. burseriana* of the Kabschia section, which contains some of the most beautiful and popular species, came from the Eastern Alps in 1826, and is represented by several varieties differing in height and size of bloom, all forming dense hummocks of spiny, grey leaves with usually white flowers solitary or two together on short, wiry stalks. This species has been crossed with others in making some excellent hybrids, which can be seen here. With *S. marginata* it produced *S. suendermannii*, with *S. lilacina* the delicate lilac-pink *S. irvingii*, and with *S. ferdinandi-coburgii* the primrose *S. paulinae*.

The cyclamens are among the brightest flowers at the present time and as the flowers last very well and the plants never get untidy they are admirable for use in the Alpine House. Among the winter- and spring-flowering species we have *C. orbiculatum* and some of its varieties and they have rounded crimson, pink or white flowers blotched at the base of the petals, held on upright stalks well above the marbled leaves. *C. coum*, which is now generally regarded as a variety of *C. orbiculatum*, is a little unusual in having unblotched leaves. Perhaps the most lovely is *C. libanoticum* which has large, very delicately coloured and sweetly scented flowers and angled or toothed leaves. Unfortunately it is not among the most hardy and is not so good out of doors. Those who have no greenhouses might care to try *C. neapolitanum* as a window plant. Corms can be bought soon after midsummer for a few pence each and if planted singly in 5-inch pots they usually begin to flower by September and the flowers continue to come for several weeks. The leaves are ornamental and when they begin to fade in April or May the pots can be stood outside or plunged under a shady wall until a fresh crop of flower-buds appears.

Some other flowering plants worth looking for in the Alpine House are *Orphanidesia gaultherioides*, an Ericaceous shrub of prostrate habit with unusual large pink bell-shaped flowers almost at soil level, *Ranunculus calandrinioides*, the first buttercup to open and remarkable for its pale colour scheme of grey green and palest translucent pink, and *Soldanella alpina*, which has purplish-blue fringed bells suspended above tiny, leathery leaves.

In addition to the flowering plants, there are a good many potted specimens of dwarf conifers which provide a pleasant background of variously coloured foliage. There are, for example, *Juniperus communis compressa*, forming a tall grey-green pyramid, *Cryptomeria japonica spiralis* green and semi-pendulous, *Thuja orientalis meldensis* in pale bronze and green, and *Chamaecyparis pisifera ericoides* of loosely conical shape and shaded with an unusual purplish-bronze.

Patches of colour are appearing in the Rock Garden, although on account of the whole area sloping to the north some species flower later here than in other parts of the Gardens. Pulmonarias form conspicuous patches of blue or rose-pink, *Primula denticulata* in several different

shades of colour is just beginning to open and here and there *Iris reticulata*, *Leucojum vernum* and *Anemone blanda* have produced their welcome flowers.

In the Alpine Meadow there should by now be quite a number of flowers of *Narcissus bulbocodium*, but at the time of writing these notes we cannot be sure whether they will make so prominent a feature as in past years, since this part of the Gardens had become heavily infested with a species of rush and during the summer of 1959 measures were adopted to eliminate this unwelcome weed and it is possible that the narcissi may have been more or less injured.

In the Wild Garden as on Battleston Hill there will be a good many rhododendrons in flower, provided the weather has been reasonably mild. Some of the most popular varieties of moderate size which makes them suitable for the smaller garden are 'Tessa', with large flowers of warm, rosy-purple on a compact bush, 'Bric-a-Brac', a white-flowered hybrid of low and dense growth suitable either for woodland or for the rock garden and 'Cilpinense' which, although it begins to flower when still young, has now reached a height of over 6 feet at Wisley. This is an outstanding plant raised from *R. ciliatum* and *R. moupinense*, with white flowers more or less shaded and spotted with rose. Among the larger rhododendrons some of the most handsome are *R. calophytum* and *R. sutchuenense*, both of which have long lustrous leaves and very large round heads of pale waxy flowers. The rose-pink form of *R. arboreum* is very reliable here and flowers very freely, although some of its buds are liable to be touched by frost. The very old hybrid Nobleanum raised in 1835 from a cross between *R. arboreum* and *R. caucasicum* is a very excellent hybrid with several varieties; and another old plant of great merit and probably also raised from *R. caucasicum* is the frilly pink 'Christmas Cheer' which flowers, weather permitting, over quite a long period from December to March and is extremely useful for cutting when flowers are very scarce.

There should be a wonderful show of camellias on Battleston Hill, including the Camellia Walk on the south slope which was laid out a few years ago. We have at the present time a comprehensive collection of all the best varieties of *C. japonica* and also well-established bushes of the invaluable hybrids grouped under the name *C. williamsii*. Even if the weather has not been too kind to those growing out-of-doors, there is a fine collection in one of the glasshouses which should not be missed.

The hardy species of *Pieris*, namely, *P. japonica*, *P. taiwanensis* and the American *P. floribunda* are invaluable for the woodland garden, being evergreen shrubs of compact habit with unusually good foliage, flowering freely and tidily at the tip of almost every growth with sprays of tiny, white, bell-shaped flowers. The Chinese *P. forrestii* when grown in a sheltered garden in a mild locality has the added distinction of producing tufts of bright red young foliage before the flowers fade, but in the uncertain spring climate of Wisley the young growths are only too apt to be discoloured by the cold and it is, therefore, not a great success here.

The forsythias, although to be seen in almost every garden nowadays, are not on that account to be despised, for they are probably the most generally useful of spring-flowering shrubs, requiring no special care and only simple pruning in order to keep them in good shape for years. The one most commonly planted is probably *F. intermedia* var. *spectabilis* which covers itself with flowers every year and is most useful for cutting in the early bud stage for indoor decoration. There is a variety of this named 'Lynwood' similar in colour, but having a larger flower, and among other large-flowered ones we have one named 'Arnold Giant' which was raised at the Arnold Arboretum and has been grown here for about ten years, and a further more remarkable hybrid named 'Beatrix Farrand' with still larger flowers in greater profusion and of freer growth which will become an extremely popular garden plant as soon as it is more freely available.

A plant related to the forsythias, but very different in its habit of growth is the Korean *Abeliophyllum distichum* which has rather thin and weak growths, best trained against a warm wall. If well treated, it will send up long shoots during the summer which during the winter are seen to be covered in their upper parts with sprays of tiny purple buds opening in February or March into sweetly scented white flowers sometimes lightly suffused with pink.

GARDENING ON HEAVY CLAY SOILS

The Hon. Sir David Bowes Lyon, K.C.V.O., V.M.H.

(*Lecture given on October* 13, 1959, SIR FREDERICK STERN, O.B.E., M.C., F.L.S., V.M.H., *in the Chair*)

THE CHAIRMAN: Our President, SIR DAVID BOWES LYON, is going to give a talk on "Gardening on Heavy Clay Soils". It is a great honour for me to take the Chair for him, a really unique occasion, because the President has in the past taken the Chair for me at lectures, but never have I had the honour of taking the Chair for him.

SIR DAVID and LADY BOWES LYON are both great gardeners. Perhaps many of you may not know that our President worked at Kew for a year in his youth, and in his garden at St. Paul's Walden Bury he and his wife have carried on the traditions of their forebears in making their garden even more beautiful than it was. The roses, the lilies, the eremurus, and many other plants are grown to perfection in that very difficult soil, no doubt owing to the skill of SIR DAVID and his WIFE. The garden is a grand sight which you all ought to see, and I am very anxious, as I am sure we all are, to hear in this lecture how SIR DAVID does it on that soil. Personally, I only know about growing plants on chalk soils.

THE HON. SIR DAVID BOWES LYON: Thank you, SIR FREDERICK, for your more than kind introduction. You referred to a period that I spent at Kew. It was a long time ago, but at that time my master at Kew was the present Director of Wisley, MR. KNIGHT, who is here today. Today the positions have been reversed.

I have been asked to give a talk on trying to garden on heavy clay. My first advice to anybody who is starting gardening is "Do not try to garden on heavy clay!" It is cold, it is sticky, it is very difficult to work, and as a rule it is very unfriendly stuff in every way. But you can grow things on it if you take a lot of trouble.

This afternoon I shall not be scientific nor biological, but purely practical. I would say that the most important thing about gardening on clay soil is drainage. Clay is most impervious stuff and the water does not get away. I am sure that many of you know that if you dig a hole in clay in the autumn or the spring and if you leave it for a few hours, it generally fills up with water. So the first thing to do is to try to drain the land. You may have to do it the expensive way, which is with piped drains or open ditches; and on top of that what you must do is to break up the second spit of soil. That is the best way, indeed the only way of getting rid of all the surplus water which lies on the top—and when it lies on the top, as you know, the roots of the plants are sitting in water all the winter, and there is nothing that kills a plant more quickly. So break up the second spit if you can but leave it where it is, because the clay on the second spit is a lot nastier than the clay in the top spit!

The next thing to do with clay, which is the greediest stuff in the world, is to put in as much organic matter as you can find. It does not matter what it is. I put in coal ashes, coke ashes, anthracite ashes, sawdust, paper—and of course leaf mould, anything to try to break it up. I find that after two years the clay has eaten it all up and seems still the same old clay—but really, of course, it is not. It is that much better. But you must really treat it very liberally with every kind of organic bulk to break it up.

The third thing about clay, which I advise everybody to do if he can, is to burn as much as possible of it. I get all the old tree stubs, roots, big bits of wood and everything I can in the winter and make an enormous fire, and when there is a great heat in it I put the clay right on top of the fire. I build it up into a cone and let it cook slowly. The fire will come through here and there after a day or so, and as soon as it does the hole should be plugged up. In this way the fire can go on for sometimes three or four weeks, provided that one stops up the holes every day, and in the end there are several tons of beautifully burnt clay, which is lovely stuff. It is like brick dust, and it handles well; it digs in beautifully, and even in its pure state plants seem to revel in it. That is one of our secrets, and it is a practice which has worked very well ever since we have been gardening.

Finally, of course, take all the advantage you can of the action of frost on clay. Where possible, dig early, leave the ground rough and let

the frost into it. Given a good bout or two of hard weather, this turned-up clay will crumble into a good seed-bed in spring.

Those are the sorts of recipes that I would give for heavy clay. The other thing to notice on a heavy clay soil is what in fact is already growing on it. You will find that the ordinary indigenous plant is, by and large, a very coarse-rooted plant. On heavy clay the main trees will be oak and ash—and we all know the great, thick, fleshy root of an ash. Coming down to smaller things, there are elders, which again have thick coarse roots, brambles and briars. With ordinary herbaceous plants, there are the *Umbelliferae*, i.e. the parsleys, the docks of all kinds. All those things can live and survive in a really nasty impervious clay. Those are the coarse-rooted plants.

What does one find in the gardening world which will have the same sort of root system? There are many things. For instance, there is the ordinary horse-chestnut. There is nothing that it enjoys more than heavy clay, for it has a coarse root. Coming down to the middle-sized trees, there are all the prunuses, which love clay. Most of the magnolias do very well on clay. I grow *Davidia involucrata* very well on clay. There are a number of other medium-sized trees of that nature which do very well on clay, such as syringa and cornus.

Then, of course, we come to the most important thing of all, which is roses. By and large, they flourish on clay, especially all those which are on briar, but even on their own roots most of them prefer a heavy clay to a lighter soil or any other sandy soil. And if you can grow roses well, then you ought not to complain very much.

Other thick, coarse-rooted plants which do very well are irises, paeonies and eremuri, provided that you can keep them well away from the damp.

So there is a sort of parallel of coarse-rooted plants, whether they are what you want to grow or what are already growing there, which gives you a guide as to what you can grow without much trouble.

Of course, the finer rooted plants do not do very well, even if you have not got chalk or lime. The *Ericaceae*, which have very fine root systems, do not like it so much as they do a soft peat soil or a good loam.

I am on very heavy clay in the middle of Hertfordshire. My house is on the top of a clay hill. I have 80 feet of clay underneath the house. At some points chalk emerges, because the basic formation is chalk, and so I have chalk and clay to deal with. When I was told that I had got to give this lecture, I felt that I must get some pictures of some of the plants that I grow. So my daughter, who is here this afternoon, acquired a camera which takes coloured photographs, and she has been busy this year trying to get a few pictures of my garden. These I propose to show you, and you can judge for yourselves whether it is worth while growing plants on clay or not.

From the house we have three long grass avenues which are bordered with beech hedges (Figs. 32 and 33). They ought to be hornbeam, which does much better and is the natural hedge plant on clay, but I preferred

beech because it keeps its leaf well on into and sometimes even through the winter, while hornbeam sheds its leaves early. They are different in all the four seasons. The clay is rather too wet for beech, but they tolerate it. There are in fact nearly three miles of beech hedge through the wood, as there are also side avenues and cross alleys which the photographs do not show. I replanted them all between 1933–9 from a consignment of 10,000 plants which I bought from Scotland for £5. They are especially beautiful in the spring, when the fresh young growth comes. By the house we have geraniums which have been in the garden for 130 years, but unfortunately the name is lost. As we go through the seasons I shall try and draw attention to a few of the things which do best with us. On the lawn are two *Magnolia* × *soulangiana* and the picture shows how they like clay. We also grow *M. denudata* and *M. soulangiana* 'Brozzoni', one of the best of these varieties with long white flowers. There is another *M. denudata* on the house and it has rooted well into the clay subsoil and grows very well. By the magnolias are hybrid Tea roses and these are pruned down to about 2½–3 feet, but by blooming time they are a good 5 feet high throughout.

Flowering cherries do well and we grow some by the pond, where they can be seen reflected in the water. With them are the grey *Juniperus pfitzeriana* and *Salix babylonica*, the weeping willow. All *Paeonia* species thrive in our clay. *P. mlokosewitchii* (Fig. 27), from the Caucasus, is a most beautiful one which blooms at the end of April with rich yellow, globe-like flowers, and is one of the best paeonies to grow. By it on the wall we grow *Rubus deliciosus*, which flowers very well every year and likes the clay. *Paeonia wittmanniana* var. *macrophylla* with paler lemon-yellow flowers and *P. obovata* do magnificently, and so do the shrubby species. We have several plants of *P. lutea* var. *ludlowii* which are 9 feet high and as much through.

The eremurus normally do very well (Fig. 30) and *E. robustus* grows up to 7 or 8 feet. Unfortunately this year the other eremurus did not do very well, as a late spring frost snubbed their precocious noses, but you will notice that they do not mind clay.

In the wood below the house we grow some rhododendrons and azaleas. As I said we are on clay with a chalk subsoil and, here, about 3 feet below ground, there is pure white chalk, but nevertheless we manage to grow some provided we do not stir up the chalk underneath and keep a good annual layer of leaves on the top. Then they seem to do very well as the picture (Fig. 34) shows. They are planted largely on the top of the soil and an annual mulch of leaves is given. We have the Exbury hybrid azaleas within 3 feet of the chalk and they have been there and have flowered for several years. Rhododendron 'Tally Ho', a brilliant scarlet hybrid from *R. eriogynum* × *R. griersonianum* grows very well and flowers late. 'Elizabeth' is a wonderful rhododendron with bright red flowers which seem to be doing very well and so does the beautiful creamy yellow *R. campylocarpum*, one of the species introduced from the Himalayas by SIR JOSEPH HOOKER just over a hundred

years ago. The older rhododendrons have been growing here for fourteen or fifteen years and seem perfectly happy.

Now for some of the roses. They are our main feature. We grow many of the species and so-called "Old Fashioned" roses but for some reason they seemed to have missed the photographer's attention. They are not easy to photograph except as close-ups. Now I have one basic rule about growing roses. I grow them as tall as I can. Most roses can be made to grow upwards, it is largely a question of how you use the pruning knife. I only shorten very slightly good healthy growth. I remove, of course, weak growths and the dead wood. In this way you get your roses at eye level or even to look down at you, and that to my mind is more satisfying than to have to look down on them. Also you get more flowers on a bush though they are smaller and to many rosarians that is wrong. I try to mulch them every other year, with farmyard manure if I am lucky or compost if I am not, and I spray when necessary against fly or caterpillars. I grow these roses mixed in with other shrubs, herbaceous and other plants and they seem to associate well with them all.

By the front door we have a beautiful red rose 'Souvenir de Claude de Noyel' and by it is 'Lawrence Johnston', a very good double yellow raised by the maker of Hidcote garden. In summer the hybrid Tea roses grow up to 6 feet high. On the barn roof we have 'Wedding Day', a very beautiful climbing rose which SIR FREDERICK STERN raised and gave to me as a small cutting. Now it is pulling down the barn roof. The German bush roses, such as 'Fruhlingsgold', also do well with us and also the hybrid Musks.

Bearded irises grow very well on the heavy clay and flower profusely year by year. We grow agapanthus, all seedlings from MR. LEWIS PALMER'S strains. They have flowered like mad and seem to have enjoyed the dry summer. All are quite hardy and survive the winter quite unprotected.

Genista lydia (Fig. 35) is a wonderful garden plant. I must admit though that it is not in clay; it is in something rather better against the wall and with it is Clematis 'Lasurstern'.

We are often told that *Wisteria sinensis* is never supposed to be any good before it is fifty years old, but this picture shows one which I planted in 1936, and it is only twenty-two years old. *Genista aethnensis* is a beautiful plant which flowers at the end of July when all the other brooms are over. The penstemons also grow very well on clay and are useful for summer flowering. We have a number of unnamed seedlings raised here. Lilacs also do particularly well on clay and we grow 'Massena', 'Madame Lemoine' and 'Souvenir de Louis Spath' among others.

Another beautiful plant which does well and evidently does not mind clay is *Staphylea holocarpa*, which flowers before the leaves come out. There is also a magnificent pink-flowered form. Some lilies also do well with us, such as *L. szovitsianum*. We have a selected form which is

notable for its quite unspotted petals. Golden Clarion, that superb hybrid group raised by MR. JAN DE GRAAFF, grows well and we also have some *L. auratum*. We heard recently from the Lily Conference that one must never propagate lilies from scales but always from seeds. However, three years ago we scaled one or two *auratum* bulbs and now we have a number of fine flowering plants. For three years it is not bad. *L.* 'Maxwill' and the old hybrid *L. testaceum* (Fig. 31) are also quite happy in the clay, and with the 'Maxwill' we grow the new hybrid *Rubus* 'Tridel'. It is a great improvement on its parent *R. deliciosus*.

QUESTIONS

Question: You said that putting leaves round the azaleas was good. When do you put them round?

SIR DAVID BOWES LYON: I shall put the leaves on during the next two months when they are swept up, and they will stay till next year, when there will be another helping. We leave them on all the year round.

Question: Do your lilies flower from the same bulb for year after year, or do they deteriorate?

SIR DAVID BOWES LYON: That is a very good question, and one which any lily grower hates having to answer! Lilies in Hertfordshire fall into several categories. The *martagon* type is almost indigenous, and they get better and better all the time, and increase. The *auratum* I would say on the whole get a little less good every year, if you buy them when they are big bulbs. The ones that I showed were from scales, and I do not know how long they will go on, but now they are getting better. By and large, I think that lilies are bulbs which tend to get smaller and less good as the years go by. Still, we get very good value out of them.

Question: Do you plant your lilies as deep as one is usually told to do on the clay soil?

SIR DAVID BOWES LYON: We do not plant them very deep, because we always believe that lilies find their own level if they want to do so.

Question: Have you had any experience of the use of gypsum for breaking down the clay structure?

SIR DAVID BOWES LYON: I have tried it, but it does not seem to have had a very good result. I have had no satisfactory result from it. Frost is one of the best things for breaking it down. If you turn up the clay in the autumn and leave it to the frost, the frost breaks it very well.

Question: I have an old tennis court, and now that I am too old to play tennis, I am thinking of converting it into a kitchen garden. It is solid clay and stones. I have not much labour. Should I have it ploughed?

SIR DAVID BOWES LYON: I should get some machine to turn it over first. You could get a rotavator, or something of that sort.

Question: What is the degree of acidity, the pH value, of your land?

SIR DAVID BOWES LYON: In some places it just bubbles up. I think it is about 7 where I grow Rhododendrons.

THE CHAIRMAN: When I had the honour of introducing our President this afternoon, I think you will all agree with me that I was right in saying that we all ought to see his garden. You saw some photographs of the garden. There are many more aspects of the garden which are very beautiful, and perhaps I may say that some of the finest things he grows are the roses. They are perfectly delightful when they are out. There are great bushes of them such as you seldom see in any other garden.

I am sure that all of you would like me to thank SIR DAVID for the very charming talk he has given about his garden and the beautiful photographs taken by his daughter. (*Applause*).

SOME NEWER GLADIOLI AND THEIR CULTIVATION

D. F. Mackay

(*Lecture given on August* 11, 1959; MR. S. OGG *in the Chair*)

IN a short afternoon lecture it is possible to deal only with a few of the very large number of new gladiolus varieties which have been introduced in recent years. The lecture will, therefore, be confined to introductions by six raisers only—one in Canada, two in America, two in Holland and one in Germany. The emphasis will be on varieties of European origin because as a general rule they seem to make better garden plants in this country and because the majority of growers here are interested in the gladiolus only as a garden plant. The North American varieties, on the other hand, are widely grown for exhibition where size, symmetry and the highest quality are essential.

Konynenburg & Mark of Holland, although best known for their Butterfly gladioli, have also introduced some remarkable large-flowered varieties, and none has made quite such an impression as the white 'Antarctic'. It has the rare distinction of having been awarded both the Haarlem and Wisley First Class Certificates and it is a variety which has already proved itself on the exhibition bench and which will undoubtedly gain popularity as a garden and cut flower variety when more plentiful. Fortunately it is a healthy grower and an excellent propagator and its price only six years after introduction is almost in the popular range.

A variety already in the popular price range but which seems to be little grown in this country is 'Genoveva', a pure cream. It is extremely vigorous: each corm produces three and sometimes four spikes and the size does not suffer because of this. Even in hot weather it holds eight fully open florets on a twenty or more bud spike, and the placement is perfect. It is also a splendid opener from bud; a virtue which will make it a great favourite as a cut flower.

Two other good large-flowered varieties from Konynenburg & Mark are 'Kosmos' and 'Gold Piece'. 'Kosmos', which was the champion spike at last year's Gladiolus Competition, is salmon with a large yellow throat. The florets, which are very large, are almost square in shape and this leads to a tidy and well-balanced spike. It is too soon yet to say whether 'Gold Piece' is the long awaited answer to our prayer for a really good yellow, but it certainly looks as though it might be. It is a canary yellow which, unlike other yellows, opens slowly and keeps its colour right to the end.

The Butterfly varieties (so called because of the colours and not the shape) have already made a big impression both on the show bench and in decorative arrangement. Unfortunately their price remains high; but when they do become cheaper they will surely be in great demand as commercial and garden varieties.

An outstanding Butterfly is 'Green Woodpecker' which sometimes grows so well that it is classified in catalogues as a large-flowered variety. It is a deep lemon green with two wine-red markings on the deeper green lower petals. It opens up to ten perfectly spaced florets on a stout stem and stands up well to the weather. 'Green Woodpecker' may not be everybody's colour, but none can gainsay its merit as an exhibition and garden variety. 'Frou Frou', a soft violet pink with a narrow veined white line, produces a delicate spike and has the merit of being very early flowering. 'Bibi', which flowers a little later, is ivory with a pink flush with deep rosy-carmine throat marks. This variety looks particularly attractive in an arrangement. One of the newest varieties is 'Topolino' (Fig. 40), a deep golden yellow with bright orange-scarlet blotches, which produces a spike of near large-flowered proportions.

P. VISSER of Holland has already provided us with some of our best primulinus hybrids and his newer varieties will delight those who like the daintiness and beautiful colourings of this section.

'Pegasus', cream with fuchsia-red veins and petal tips and 'Apex', scarlet with sharp white petal edges have already made their appearance and mark in this country. But 'Page Boy' and 'Robin' could be destined for even greater things. 'Page Boy' is mandarin red with the petals delightfully edged in yellow, and 'Robin' is in two shades of purple. And in 'Robin' we have one of the all too rare late-flowering primulinus varieties. 'Little Trophy' is ivory white with very small florets, but, like many other primulinus hybrids, it does tend to be a little irregular. There is the occasional floret where the petals are in the reverse order and the typical hooding is lost; but this matters only to the purist and it is a very pretty flower.

All of these primulinus hybrids have received the Haarlem Award of Merit.

VISSER has also produced some varieties in the Butterfly style, and 'Alice' seems to be a particularly good one. It is ivory with what are called raspberry-red blotches, and it is built on the same stately lines as

'Green Woodpecker'. Another white, although creamy this time, is 'Southport', which has sulphur yellow blotches. 'Cormbra' is orange with red blotches.

Of large-flowered varieties VISSER has produced two which exhibitors in this country have already used with considerable success. The first is the magnificent 'Keukenhof', lavender rose with the colour deepening towards the edge and a cream blotch with a white mid rib. It grows well in this country and has received the Wisley First Class Certificate. Secondly, there is 'Vulcano', another variety built on very ample proportions. This is a good exhibition variety which, although large flowered, still produces a spike which is symmetrical and well balanced. And the deep orange colouring does not seem to "peel" in bright sunlight (Fig. 40).

Three new smokies from VISSER are 'Narissa', 'Feast' and 'Striped Beauty'. 'Narissa', which looks to be the best of these, is reddish buff in colour with the main ribs clearly etched in cream. It is a striking looking spike of good form and it will be a valuable addition to a colour class which is still rather weak in numbers. 'Feast' is of cherry red background with a greyish purple centre, and 'Striped Beauty' is signal red heavily veined in white. 'Striped Beauty' may have to be classified as "any other colour", in which case it will be useful for the exhibitor.

From WILHELM PFITZER of Germany come two outstanding large-flowered varieties. The first is 'Ballerina' which received our Award of Merit in 1957. It is ivory white with clear and even rosy pink blotches in the throat. It may be a heavy spike for the garden and for the flower arranger, but for the exhibitor it is perfection. Eight, nine or ten florets of thick substance open at the same time with as many more showing colour. The stem is straight and strong and the florets are well placed and strongly attached. It is a healthy grower and propagator and consequently its price is falling fast.

The second PFITZER introduction is 'Majolica' which has been called the most beautiful colour combination yet found in a gladiolus. It is basically light porcelain blue with deep purple blotches; but its real beauty comes from the fact that it is dark blue on the outside of the florets which causes what can only be described as a glow inside. It is of perfect form and is a fine propagator.

PFITZER has also produced a near Butterfly type called 'Piccolo', which is not to be confused with the American face-up of the same name. It is carmine rose with a red throat and it will serve to replace one of Konynenburg & Mark's original Butterflies called 'Boston' which unfortunately seems to be no longer obtainable.

MILTON JACK of Canada introduced the lovely 'Violet Charm' in 1953 and, as recently as last year, it was considered in Canada as the best variety of its colour. It is a light violet with a cream throat arrow marked in deep violet, and it opens eight to ten florets in perfect placement on a twenty-bud spike. 'Violet Charm' is already extensively grown by exhibitors in England, and it will become even more popular

now that the price compares favourably with that of other violet varieties.

A later introduction of MR. JACK is 'Pirate Chief' which comes in the giant class. It is deep lavender with a rosy purple throat feather edged in cream. It is a strong and vigorous spike which opens eight or nine florets in regular placement and it is already available in this country at a reasonable price. Another JACK introduction is 'Pacemaker' which has won many prizes in North America and which will undoubtedly be grown by exhibitors in this country when available. It is not a giant-flowered variety but produces tall spikes with up to twenty-two buds and nine or ten florets open at once. It is a ruffled pink, shading lighter to the centre, with a cream lip.

The Americans are raising a lot of giant varieties which, while spectacular plants in the garden, will find more favour in this country with exhibitors than with others. 'Winnebago Chief', which was raised by DR. GRAFF of Freeport, Illinois, is a massive red gladiolus with a white throat which opens nine or ten of its huge florets on a spike of more than twenty buds. With a length of spike of almost 2 feet in full and fresh bloom it is most impressive.

MARION C. RICH, of Wayne County, New York, is noted for ruffled varieties and three have received high American awards. 'Top Hat', which was introduced only last year, is a deep black-red in colour with a velvety sheen. It grows to a height of nearly 5 feet with a flower head of over 2 feet and, unlike many other varieties of its colour, it does not burn in the sun. 'Blue Smoke' (Fig. 40), as its name suggests, is a smoky. The basic colour is almost blue and the large throat blotch is smoky salmon. This is a variety which carries its florets in pronounced zigzag formation up the spike, but the florets are so large that it cannot be faulted on grounds of spacing. 'Party Ruffles' is a very heavily ruffled cream with a slight tinge of pink (Fig. 40). It is another American variety which regularly produces spikes with over twenty buds and it grows to a height of almost 5 feet. Of interest to hybridizers in this country is the fact that the raiser considers 'Party Ruffles' to be the best parent that he has ever used.

CULTIVATION

The gladiolus is what might be termed an easy flower. Good corms from a good source will mostly produce good flower spikes with little or no attention at all. But the gladiolus is also a flower which will pay handsome dividends if generously treated.

Ideally it requires a medium, well-drained loam with a high humus content to ensure an adequate water supply during the whole period of growth. Few growers in this country have these ideal conditions; but for spikes of the highest quality it is necessary to get as near as possible to them. This means winter digging to at least a full spit down and the incorporation of manure, compost or peat and, if the soil is heavy, coarse ashes, sand or grit.

It has been found that the best spikes come from plants which are growing in full sun all day, but a little shade does not appear to be harmful. Plants which spend half their day in shade definitely do not give of their best. An open site then is needed and it is preferable to have a site large enough to accommodate all the plants together. This reduces the amount of work at every stage of cultivation from planting to lifting. In the border it is better, both for effect and ease of cultivation, to plant in large batches rather than small.

The best corm is one which has a high neck, i.e. its depth is as great or nearly as great as its diameter. It also has a small root scar. Such a corm has been grown rapidly from a cormlet and will be flowering for the first time. It will produce a spike of great vigour. Corms which are flat and have very large root scars do not produce such good spikes.

The time for planting depends to some extent on the time when the plants are required to be in flower; but, generally speaking, it can be said that a planting of several varieties—early, mid-season and late—in the middle of March will ensure a succession of bloom from the middle of July to the end of August. This applies to the South of England. In the Midlands and North, development takes ten days or a fortnight longer. Later plantings to the end of April extend the season to the end of September, but it is not recommended that plantings should be delayed into May.

A trowel is the best tool for planting. The corms can be spaced out on the soil surface and each one picked up and its hole dug out. Many growers favour planting in trenches and, while this is probably as good as digging individual holes, it does involve the removal and replacement of much more soil. Planting with a dibber is definitely to be deprecated, particularly on heavy soils. The soil at the base of the bulb is consolidated and this makes it difficult for the roots to get a clear run away. If the spikes are required for exhibition a foot each way between the plants is recommended; otherwise 9 inches is about right. The primulinus and small-flowered varieties, where size does not count so heavily, can be planted 6 inches apart or less.

Depth of planting depends entirely on the soil. In very fine soils the corms should have 6 inches of soil above them and in heavy soils 4 inches. At these depths the plants will be securely anchored and will stand up to all but the highest summer winds. Staking them is rarely necessary except perhaps to straighten a plant which is not growing upright or to correct a bend in a spike. It is advisable to dig the hole an inch or two deeper than is required for the soil coverings mentioned above and to put a handful of sharp sand in the bottom. The corm sitting on this sand gets its roots away to a very good start and the sand also helps with drainage. Another handful of sand on top of the corm ensures a nice clean new corm on lifting and keeps wireworms from the corm and slugs from the young shoots.

In the first month of growth it is essential that the soil should be kept moist. The roots are short and tender and they can rapidly

dry out and die. The gladiolus likes to be kept moist at the roots all through its life in the ground, but never is this so important as in the first month.

The shoots appear above ground anything from four to six weeks after planting according to soil temperature and moisture content and, until then, it is not advisable to hoe the ground. If a gladiolus shoot meets with an obstacle, quite a large detour can be made and it is possible for a shoot to break surface up to 6 inches from the point immediately above the corm; and such a shoot could easily be hoed off. As soon as all the shoots are showing, the ground can be hoed regularly and deeply. The gladiolus is not a surface rooter: roots from both the old and the new corm travel downwards at an angle of about 45°.

Feeding can commence when the plants are showing four leaves, but if the ground in which they are growing was well nourished the previous winter, little or no feeding at all will be necessary. In any event, the feeding should be judiciously done and strictly in accordance with the directions issued by the makers of the fertilizer being used. A well-balanced fertilizer with nitrogen, phosphate and potash available in equal proportions seems to suit the gladiolus best. A very high nitrogen content is to be avoided as it produces a softness and unnatural lengthening of the stems with consequent bending and gaps in the floret placement.

Spikes for indoor decoration are best cut when the bottom florets have just opened. A spike develops much more quickly on the plant than when cut and in water, and exhibitors cut spikes three or four days before a show if it looks as though they will be past their best if left on the plants. Some varieties open well in water when cut with the bottom florets just showing colour. But others never seem to develop properly when cut in this state. Unless the variety is known to be a good opener from the bud, it is better therefore to wait until the bottom floret has opened.

The actual cutting of the spike is an operation of the greatest importance if the corm is to be saved for another year or if propagation is to be done from cormlets. The new corm begins to form immediately above the old corm when the plant is about a foot high. The new corm is, in fact, a swelling of the shoot. At the time when the plant is in flower, the new corm is only about half developed and to complete the development and to form a crop of cormlets it needs as much leaf area as possible. It follows, therefore, that the minimum number of leaves should be removed with the spike. With some varieties there is a good length of stem between the point where the spike comes clear of the leaves and the bottom floret; and these present no difficulty. But certain varieties such as 'Antarctic' and 'Dr. Fleming' have the bottom floret actually resting in the joint of the top leaves. These varieties can best be cut by parting the leaves as far as possible and thrusting a pointed knife through the leaves and stem some 9 inches from ground level. The spike can then be drawn out and at least four leaves are left intact.

Plants which are allowed fully to flower in the garden should have the spikes removed as soon as the flowers have died. This will prevent seed formation which takes energy from the plant at a time when it can be more usefully employed in building up next year's corm.

Lifting of the gladioli can commence six weeks after flowering, but it is better to wait for a spell of dry weather when the corms will not be in a sodden condition. Although it is an advantage to grow gladioli on different ground each year, few people can manage this and have to grow them on the same ground for perhaps five or six years. For them it is important to lift the plants carefully so that cormlets do not fall back into the soil. They would be a nuisance in later years.

The old theory was that the sap in the leaves should be allowed to drain back into the new corm; and after lifting growers were advised to hang the plants in bundles, corms downwards, in a dry airy shed. Such treatment has now, however, been found to be one of the surest ways of rotting corms in storage and, in any case, it is doubtful whether anything of value passes back to the corm when once the leaves have commenced to die. Nowadays the leaves are cut from the corms on lifting and the corms are spread out into boxes to dry.

Rapid drying at a temperature of about 80° F. in an airy greenhouse or round the kitchen boiler will enable the old corm and any soil to be removed from the new corm in a fortnight or just over from lifting. It is then advisable to skin the new corm right down to the flesh not only to show the presence of any disease but also to allow the moisture which has accumulated between skin and flesh to dry off. The corms seem to "sweat" a little unless dried under the electric fan conditions of the commercial grower.

For winter storage the corms need a dry, airy and frost-free atmosphere. A humid atmosphere will encourage mildew and disease, and too high a temperature results in premature sprouting. The loft, immediately above the airing cupboard, is the ideal place except when there are freezing east winds. But during such periods the corms can be brought down to the spare bedroom. They are best kept in single layers in seed boxes or trays, but they can be kept in paper bags if the bags have holes in the sides and are left open at the tops. A dusting of 5 per cent D.D.T. powder mixed with flowers of sulphur before the corms are finally put away kills off any pests such as thrips, which would otherwise over-winter on the corms, and prevents the formation of mildew.

PESTS AND DISEASES

Pests of the gladiolus are fortunately few. Wireworms and slugs can, as mentioned above, be kept from the corms and young shoots by planting in sharp sand. Aphis can prove troublesome in some years, for not only do they make the foliage and florets look unsightly, but also they can be the carriers of virus diseases. There are many proprietary sprays which will kill the aphis and applications at fortnightly intervals are

quite sufficient. The cabbage white butterfly becomes active just before the spike of the gladiolus appears and, by the time its eggs have hatched out, the spikes are clear for the young caterpillars. They like nothing better than to chew down into the top of the buds and completely ruin the florets. A D.D.T. spray mixed with the spray for aphis from the end of June onwards will keep this pest under control.

The most serious pest of the gladiolus is the thrip which is about $\frac{1}{16}$ inch long and banded black and cream. It damages the plant by sucking the juices, and the leaves become streaked with silver and the florets lose their colour and do not open properly. The pest overwinters on the corm and can be controlled, as already mentioned, by a dusting of 5 per cent D.D.T. powder before storage for the winter. It favours hot sunny periods such as we experienced in July, at which time the active insects will be killed by a D.D.T. spray.

Apart from the virus diseases about which little is yet known, all the diseases of the gladiolus are fungoid in nature and spread by means of spores either in the soil or airborne from plant to plant. Because of the possibility of infection through the soil, it is advisable to grow gladioli on fresh ground each year. But in gardens where this is not possible the spread of disease can be minimized by removing any diseased plants as soon as the disease becomes apparent.

Fusarium yellows—*Fusarium oxysporum*—causes a generally unhealthy looking plant with yellowing leaves. The few roots are thin and brown, and the corm, if cut open, will be found to have dark markings in the centre. Botrytis—*Botrytis gladiolorum*—first shows itself as red or brown marks on the leaves usually just above ground level. Dry rot—*Sclerotinia gladioli*—causes the plant to grow in the form of a curve until 6 inches to a foot high when it topples over having rotted at the point of entry from the corm. And hard rot—*Septoria gladioli*—is first noticed as black spots on the foliage and later the leaves may die down more quickly than those on healthy plants.

Dry and airy storage conditions, which are unfavourable for the spores of these diseases, help to keep the stock healthy; and dipping the corms before planting in a solution of the highly poisonous mercuric chloride or the more safe mercuric compound Aretan gives partial control if the diseases are only superficial. But when once a corm is heavily infected there is no cure.

A specialist gladiolus supplier will take great pains to ensure that his corms are as disease and pest free as they can be, and the importance of purchasing from such a source cannot be too highly stressed.

HORTICULTURE AND THE LAW

C. G. L. Du Cann

LAW should be everything that the law of England is not: clear, simple, intelligible, and readily ascertainable. Our body of law is just the reverse, and the poet Tennyson justifiably described it, even in Victorian days, as "the lawless science of our law . . . that wilderness of single instances". Great Lord Chancellors, from Francis Bacon to Lord Westbury, have cried manfully for its reform, but no legal Hercules has yet appeared to cleanse the Law-gean stable from the ever-mounting excrement of dead generations' minds.

Horticultural law, as might be expected, partakes of the character of the English law in general. It has to be dug out with infinite pains from the statute-book, from scores of volumes of law-reports, past and present, from the fields of equity, common-law, and even criminal law. There is no text-book upon it, for those hard-headed men, the publishers of law-books, have explained to would-be garden-law writers that there is no money in it. And of course horticultural law covers a wide range, subdivided into special categories: to give some off-the-cuff examples, the Seeds Act and Seeds Regulations, chiefly interesting to seedsmen; allotment-law, chiefly interesting to allotment-holders; and "statutory-instruments" like the Sale of Diseased Plants Order, of special interest to nurserymen. Yet all these three examples (like many others) can affect the ordinary amateur garden-owner.

This being the state of affairs, it is quite impossible to present a neat, tidy, picture of the whole legal position, summarized for the rapid assimilation of the general reader. You could not do that in a brief article or even in a dozen articles. How one wishes one could! But one has to face the reality: like the Earth at Creation in the book of Genesis, the law is a chaos "without form and void" and darkness lies "upon the face of the deep".

A good practical way to start, perhaps, is to consider the legal positions that may arise between adjoining gardens, for proximity is the prolific mother of disputes.

Overhanging trees are often a nuisance, and a cause of complaint by one garden-owner against another. Similarly with spreading roots. The law with regard to these is judge-made and contained in a couple of decided cases *Lemmon* v. *Webb* (1894–5)[1] and *Butler* v. *Standard Telephones* (1940)[2]. And that law amounts to this: the occupier of land may, without notice, cut off the overhanging branches of his neighbour's trees or sever roots which have spread from those trees into his own land. Put more generally, it is lawful to abate (i.e. to terminate by his own action) any nuisance by which that land is injuriously affected.

[1] *Lemmon* v. *Webb*, [1894] 3 Ch. 1; [1895] A. C. 1.
[2] *Butler* v. *Standard Telephones*, [1940] 1 K. B. 399.

Although this is the law, I would not advise a garden-owner to act without notice. To give the neighbouring garden-owner the chance of doing the necessary act himself, is only reasonable and courteous, and if litigation should ensue, courts take note of the respective behaviour of the parties concerned. It is a sound rule of conduct always to give notice to the other side before, as people say, "taking the law into your own hands", of which "abating a nuisance" is an example.

What about fruit that falls on one's garden from a neighbour's trees? Whose property is that? The law from decided cases, dating from 1814,[1] is clear upon this point. The fallen fruit remains the property of its owner, and the neighbour cannot appropriate it. Indeed, the fruit-owner may go in and re-take his fallen fruit. But a case of 1829[2] makes the point that he should make a previous request to the other garden-occupier before entry: And if it be necessary for the fruit-fallen owner to enter his neighbour's garden, he must "make no longer stay than is convenient"[3] (i.e. necessary for the purpose) and, of course, should do no damage.

This is really an illustration of the general rule that while a man may "abate a nuisance" he cannot, in general, appropriate the materials and convert them to his own use. Therefore fallen, or cut-off, branches, or severed roots, remain the property of their original owner or occupier of the first garden.

Take now the ownership of boundary trees or shrubs. How is that ascertained in a doubtful or disputed instance? By the leading case, *Holder* v. *Coates* of 1827,[4] the tree belongs to the garden-owner who planted or sowed it. This seems in accord with common sense, but frequently it is not known who (if either) planted the tree or shrub. By the same case it was decided that the ownership depends upon the situation of the body of the tree. Spreading roots (or presumably branches) do not affect the ownership.

Some trees and shrubs are poisonous. It is not unlawful to allow these, such as yews for example, to grow on or near a boundary.[5] But if the branches overhang and can be reached (by cattle for example) he is liable for any loss or injury caused: there is ample authority for these propositions.[6]

Sometimes trees or shrubs overhang a highway, causing inconvenience to passers-by. This is a public nuisance. Not only the local Council, but any member of the public passing that way, may lop them —a decision which annoyed the then Earl of Lonsdale in 1823.[7]

Overhanging trees sometimes injure adjacent crops. Briefly, since

[1] *Forsdick* v. *Collins* (1814), 1 Stark. 173.
[2] *Anthony* v. *Haney* (1829), 8 Burg 186.
[3] *Miller* v. *Fordyre* (1592), Poph. 163.
[4] *Holder* v. *Coates* (1827), M. & M. 112.
[5] *Ponting* v. *Noakes*, [1894] 2 Q. B. 281.
[6] *Erskine* v. *Adeane* (1873), L. R. 8 Ch. 756; *Crowhurst* v. *Amersham Burial Board* (1878), 4 Ex. D. 5.
[7] *Lonsdale (Earl of)* v. *Nelson* (1823), 2 B. & C. 311.

1904 it seems to be the law that an injunction may be obtained and an action for damages will lie, against a neighbour for this wrong by the sufferer from it.[1]

Fences and walls between gardens often raise uncertainties. Properties within metropolitan Building Acts 1930–55 have the position regularized by statute. Other garden-owners are in a less happy position, and so uncertain is the law, where the deeds are silent as to responsibility, that the solution calls for a judgment of Solomon.

Hunt's *Boundaries and Fences*, though not up-to-date, is still a useful book on this subject. There is a legal presumption that a fence, like a ditch, belongs to the owner of the land on which it stands—but often it is not easy to say whose the thin marginal land of the thickness of a wood-slat, is. In 1710[2] it was ruled that there was no common-law upon any landowner to erect or maintain fencing round his land, and this was re-stated in a 1911 King's Bench case.[3] By the famous case of *Fletcher* v. *Rylands*, dating from 1866,[4] even if you have not fenced, a neighbour remains liable for damage by his straying animals.

It is interesting to note that a man cannot bind his successors in title to make or maintain a fence. The covenant, however framed, remains merely a personal one, and does not run against subsequent garden or land owners.[5] Yet, as between landlord and tenant, the covenant to make or repair or maintain, does run with the land.[6]

So ancient and common and necessary is fencing, that you would think the law would be free from doubt or ambiguity upon it. Cases arise quite commonly, however, where it is exasperatingly impossible for lawyers to advise their clients as to their rights or responsibilities as between adjoining garden-owners. In such cases there is nothing better to be done than to "agree with thine adversary quickly"—and amicably out of Court.

Nowadays malicious injury to garden property is unhappily a common occurrence. Section 8 of the Larceny Act of 1916 is fierce upon those who "steal or cut, break, root-up, or otherwise destroy or damage, intending to steal any plant, root, fruit, or vegetable production in any garden, orchard, pleasure-ground, nursery-ground, hothouse, greenhouse, or conservatory". Sections 20 and 21 of the Malicious Damage Act of 1861 are no less fierce upon those who unlawfully and maliciously "cut, break, bark, root-up, or otherwise destroy or damage" any tree, sapling, shrub, or underwood. The value of the damage, 1*s.* to about £5, governs the penalties prescribed. The statute was extraordinarily harsh on males under 16—who, unlike girls or adults, could have whipping added to the long penal servitude Victorian ferocity permitted.

Indeed, the heavy punishment prescribed as maxima for offences

[1] *McCombe* v. *Read*, [1955] 1 W. L. R. 635.
[2] *Star* v. *Rooksley* (1710), 1 Salk. 335.
[3] *Coaker* v. *Willcocks*, [1911] 2 K. B. 124, at p. 127 (C. A.).
[4] *Fletcher* v. *Rylands* (1866), L. R. 1, Ex. 265.
[5] In *re Drew's Estate, ex parte Mason* (1866), L. R. 2 Eq. 206.
[6] *Re Austerberry* v. *Oldham Corporation* (1885), 29 Ch. D. 750.

against horticultural property are never now inflicted. Criticizing these survivals of an out-moded penal code, the organization of lawyers known as "Justice", has drawn attention *inter alia* to the fact that for cutting a hopbind—the climbing stem of a hop-plant—an offender by the same Act can get 14 years. Certainly it seems a "bit much": as King Charles I said upon Andrew Marvell's "memorable scene", "Methinks the punishment exceeds the offence", and such penalties are not given nowadays. (In contradistinction, destruction of a fence, wall, or gate, for a first offence a fine under £5 seems too light.)

Rubbish is sometimes thrown into other people's gardens by ill-disposed persons. Or persons trespass to urinate or the like. In cities and boroughs, the Town Gardens Protection Act of 1863 prescribes penalties for this kind of disgraceful conduct in enclosed gardens or ornamental grounds. But there is no specific protection for other garden-owners as such, and presumably it would be necessary to invoke the general law of trespass to deal with such nuisances when committed.[1]

Weeds growing on neglected land can of course be an affliction and injury to neighbouring garden-owners. The legislation applying to this straightforward nuisance is over-complicated, and you look up the Corn Production Acts (Repeal) Act, 1921, v. i (c) and Schedule, the Injurious Weeds (Delegation to County Borough Councils) Order, 1948, S.I. 1948, No. 1135, and Injurious Weeds (Delegation to County Agricultural Executive Committees) Regulations, 1950, S.I. 1950, No. 1376, under which certain officials can act on behalf of complainants. There is of course a certain limitation on the injurious weed-seeds that may be contained in certain seeds for sale (not all by any means) dealt with in Section 3 of the Seeds Act 1920.

Nor is this all. Thistles seem to be a special case. On the authority of *Giles* v. *Walker*,[2] a Victorian case, it used to be said that a garden-occupier was under no duty to his neighbour to cut thistles on his land to prevent them from seeding: and if owing to his neglect to cut them, the seeds were blown on to his neighbour's garden and do damage, he was not liable. But this needs now to be reconsidered in the light of our former Lord Chief Justice, Lord Goddard's, judgment in *Davey* v. *Harrow Corporation*.[3]

One forgotten corner of horticultural law is the mis-described Adulteration of Seeds Act, 1869. It seems safe to say even seedsmen or Ministry officials take no cognisance of it, and no living lawyer has had a case under it, though from its title you might think it a very live and topical matter indeed. By it, every person who kills or dyes or causes to be killed or dyed, any seeds or sells or causes them to be sold, "with intent to defraud" commits an offence. But the first offence only attracts a penalty not exceeding £5, but for a second offence there is a rare (perhaps even unique) punishment in addition to "not exceeding

[1] *Gregory* v. *Piper* (1829), 9 B. & C. 591.
[2] *Giles* v. *Walker* (1890), 59 L. J. Q. B. 416; 24 Q. B. D. 656.
[3] *Davey* v. *Harrow Corporation*, [1951] 2 All E. R. 310.

£50", the killer or dyer may have his name, abode, occupation, business address, and punishment, published at his expense at the instance of the Court, in the newspapers or elsewhere.

It would be interesting to know the origin and history of this piece of apparently obsolescent legislation, and whether any person was ever prosecuted under it. Shortly and succinctly, its principal provisions are plainly set out in that Bible of the Magistrates' Courts, *Stone's Justices Manual*—but how many living magistrates ever needed to consider it?

Gardeners are often concerned in hot weather with the problem of watering. It is generally known, of course that various water authorities, such as the Metropolitan Water Board, exact in respect of our outside tap an extra rate for non-domestic use such as garden and motor-vehicle user of water. It is also generally known that suppliers can prohibit or restrict the use of water for cars or gardening if a serious deficiency exists or is threatened. But what is not generally known is that these powers under the Water Act of 1945 apparently only apply to water "drawn through a hosepipe or similar apparatus".

Even in times of water scarcity, then, the gardener is not completely baffled. Are watering-cans or other vessels "similar apparatus" within the meaning of the Act? *Prima facie* one would think not. What would the Courts rule? A litigious gardener may like to stage a test-case and immortalize himself in the annals of law and horticulture.

Suppose, as is most likely, the gardener pays the special gardening water-rate, is he in these restrictive circumstances liable to lose his money? No: the Act takes care of this point. The rate shall be subject to "a reasonable reduction" to be settled, if the parties cannot agree, by the Lands Tribunal.

"A supply of water for domestic purposes" can include certain water used for gardening purposes—a fact not always realized by gardeners—without payment of any special rate. Providing (1) the water is drawn from a tap *inside the house* and (2) "no hosepipe or similar apparatus" is used, water for "watering *a* garden" incurs no extra rate.

Quite clearly, then, a private garden, however large, is exempt from extra charge. Would the exact words of the Water Act "a garden" include a market-garden or a nursery-garden? This exact point has never been decided as such, but from the long list of analogous decided cases it is not impossible to deduce the principles governing the matter. "Trade" is not domestic; and a 1915 case, *Ilkeston Corporation* v. *Fretwell*,[1] laid it down that "farming purposes" were not domestic. Our highest legal authority, the House of Lords, laid it down in more than one case that the "character of the purpose" for which water is used is the test. On this principle, market-gardens, nursery-grounds, and the like, could not escape paying a special rate.

Bonfires, however safe in themselves, occasionally cause trouble. We moderns, especially town-dwellers, are beginning to realize the importance of clean air to health, and the smoke of an ill-sited bonfire,

[1] *Ilkeston Corporation* v. *Fretwell*, [1915] J. P. 80, p. 4.

having regard to the direction of the prevailing wind, can be a very real nuisance to others. The ordinary law of actionable common nuisance applies to such cases. Besides which, any person "who makes any bonfire" may come under Section 28 of the Town Police Clauses Act, 1847.

Outside a lunatic asylum—or the law of England—nobody would say that a private garden was a street. Yet for the purposes of certain statutes a garden, if unfenced "adjoining or abutting upon any street in an urban district" can be "deemed to be" both a street and an open and public place. This illustrates the danger of supposing that a common word when used in any Act of Parliament necessarily has its colloquial or customary or dictionary meaning. The Law of England sometimes uses words as Humpty Dumpty did in *Alice in Wonderland*: "When I use a word," Humpty Dumpty said in rather a scornful tone, "it means what I choose it to mean—neither more nor less." To mean not what they mean in ordinary English, but what the particular ordinance makes them mean—often quite perversely and in blank defiance of their usual acceptation. "Though this be madness yet there's method in it," as Polonius said in *Hamlet*. It is excessively misleading, of course, for the ordinary non-legal reader to find a word like "street" meaning ground which is the negation of a "street", or "public" including its exact opposite, namely private. It is disconcerting, too, having read Section 28 of the 1847 Act you must read Section 81 of the Public Health Acts Amendment Act of 1907 to find out what it now means in law in relation to garden bonfires and other matters.

If you act reasonably and considerately for the neighbours in making your bonfire on your own land, however, you are—up to the present—legally safe. Generally speaking, the bonfire only gets into trouble in the Courts when it is ignited in the genuine street or a public place. The schoolboy who told the policeman: "I thought lads only got into trouble over a bonfire in the street if it was Guy Fawkes Night" (as the policeman told the Juvenile Court) was singularly mistaken.

Royal Parks and Gardens are specially protected from injury by law. So, too, are the public in their enjoyment of them. The Parks Regulations Acts of 1872 and 1926 were specially passed to that end. Allotments, too, enjoy special legal protection, understandably enough in view of their national importance in war-time. Strangely enough, they only enjoy this protection if a notice under the Allotments Act 1922 is "conspicuously displayed on or near the allotment-garden". No wonder allotment-holders are a discouraged crowd, for damage and theft upon their holdings is frequent and they surely deserve greater protection.

The commonest and most frequently-arising legal situations relating to gardens conducted without a view to trade, have now been dealt with. But horticultural trade law cannot be dealt with in any detail here. It is a wide field, comprising general statutes such as—for example—the Sale of Goods Act and the Merchandise Marks Acts, and many statutes and orders peculiar to itself, such as the Horticultural Produce (Sales on

THE GARDENS AT ST. PAUL'S WALDEN BURY

Photo: Miss D. Bowes Lyon

FIG. 27—*Paeonia mlokosewitchii* from the Caucasus (see p. 106)

FIG. 28—The Lime Avenue at St. Paul's

Photos: J. E. Downward

FIG. 29—View from the Temple showing Beech Hedges

FIG. 30—Eremurus 'Highdown Gold' on left and on right *Senecio laxifolius*, heavily pruned and Alstroemeria Ligtu hybrids (see p. 106)

Photos: J. E. Downward

FIG. 31—*Lilium testaceum* with Roses at St. Paul's (see p. 108)

FIG. 32—The Beech Avenues and Hedges at St. Paul's in late spring from the terrace of the house

Photos: Miss D. Bowes Lyon

FIG. 33—The Beech Avenues and Hedges in late autumn

FIG. 34—Hybrid Azaleas in the wood at St. Paul's (see p. 106)

Photos: Miss D. Bowes Lyon

FIG. 35—*Genista lydia* and Clematis 'Lasurstern' (see p. 107)

Photos: J. E. Downward

FIG. 36—Organ house in the woods

FIG. 37—Gateway to the woods at St. Paul's

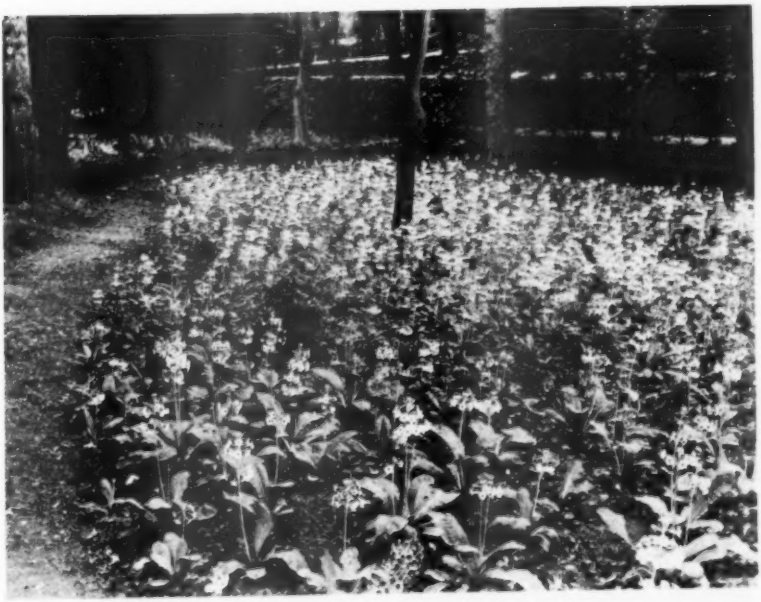

FIG. 38—*Primula pulverulenta* Bartley Strain

Photos: J. E. Downward

FIG. 39—*Rhododendron augustinii* in the woods at St. Paul's

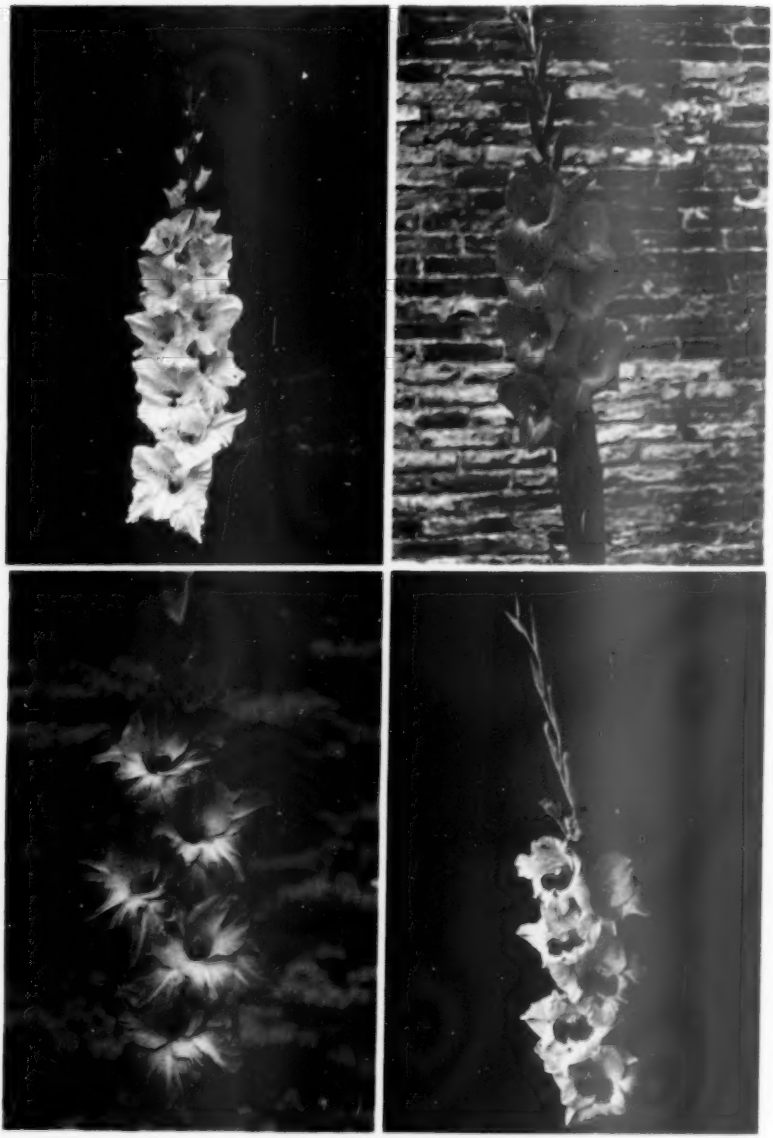

FIG. 40

Top left: 'Party Ruffles', a heavily ruffled Gladiolus raised by Marion C. Rich of New York (see p. 112)

Top right: 'Vulcano', a large flowered variety raised by P. Visser of Holland (see p. 111)

Bottom left: 'Blue Smoke', a giant variety raised by Marion C. Rich of New York (see p. 112)

Bottom right: 'Topolino', a good Butterfly Gladiolus (see p. 110)

Commission) Act, the Seeds Act, the Fertilizer Acts, the Destructive Insects and Pests Act, the Forestry Acts, 1919–51, together with Orders such as the Sale of Diseased Plants Order, the Rose Marking Order, and others. Nor can the common law and the other law-reports be neglected.

But horticultural trade law is too large a subject to be compressed here. It only remains to be said that the Ministry of Agriculture might engage in many less useful and necessary tasks than in compiling a book on Garden Law obtainable by the general public from the Stationery Office. The horticultural industry has such bodies as the Horticultural Trades Association and the Seed Trade Association and the National Farmers' Union to give specialized legal advice, but even they would welcome a Ministry publication embodying its horticultural legislation.

OBSERVATIONS ON THE LIFE HISTORY AND CONTROL OF THE VINE WEEVIL ON CYCLAMEN AND FOLIAGE PLANTS

E. Christine Mason

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IN March 1953, our attention was drawn to serious losses amongst cyclamen on a nursery at Turnford, Herts. These plants were being grown mainly for the Christmas flower trade, and it was estimated that at least 1,000 were lost during the late autumn of 1952 through feeding of the larvae of the Vine Weevil, *Otiorrhynchus sulcatus* (F).

Life-cycle

A comprehensive account of the biology and control of this pest in the U.S.A. was published by FLOYD F. SMITH (1932), but as there was little information on its biology in Britain, observations were made on the life-cycle in the laboratory and on the nursery, to determine at which stage control measures could best be applied.

As a result of these it was concluded that under warm greenhouse conditions, adult weevils emerge from the soil in numbers over a period of 2 to 3 months towards the end of the year. These adults are remarkable in that they can reproduce parthenogenetically, i.e. eggs develop without fertilization and male weevils of this species are unknown. It was therefore possible to cage individual weevils and note the maturation period between emergence and the commencement of egg-laying, and numbers of eggs laid by single adults. From these observations, it was noted that weevils were producing eggs, on average, 63 days (from 47 to 88 days) after emergence, and could continue egg-laying, daily, for periods of at least four months, probably much longer, during the spring and early summer. The number of eggs laid in each 24-hour period by one adult averaged seven, but ranged from 0–28.

The weevils were fed on yew leaves, *Taxus baccata*, but SMITH (1932) had found that compared with weevils kept on fairy primrose, *Primula malacoides*, those fed on yew produced only about half as many eggs, so the daily average is probably over seven, in many plant houses. The total number of eggs laid by one weevil during its life is high, for the figures in Table I are not complete—the maximum number recorded

TABLE I

Oviposition Records of Individual Weevils

	(*a*) *Unknown Age*				(*b*) *Newly Matured*				
Weevil . .	1	2	3	4	A	B	C	D	Totals
No. days . .	16	10	17	3	100	104	59	87	396
No. eggs . .	79	99	293	20	630	727	495	535	2878
Average per day	5	10	17	6	6	7	9	6	7

by SMITH (1932) was 1,681. Under laboratory conditions eggs hatched 15–36 days after oviposition, usually commencing on the 19th day and extending over a 6-day period.

Eggs produced in the mid to late-winter period give rise to larvae, which as they become fully grown are responsible for the severe late autumn losses amongst cyclamen and other pot plants. These larvae pupate in the pots and are mature adult weevils by November or December of that same year. Those larvae developing from eggs laid in the spring and early summer do not reach the adult stage until early the following year.

Under these conditions therefore, though the length of the life-cycle of the weevil means that only one generation is completed in a year, there is considerable overlapping and all stages, eggs, larvae, pupae and adults may be found at any one time, so that the control of this pest is not easy.

Host Range

Additional host plants to those recorded by SMITH (1932) were noted in the course of a visit to heated glasshouses on the nursery in November 1953, when typical Vine Weevil leaf damage was seen on potted foliage plants. Closer examination showed that plants of *Cissus antarctica*, were the most severely affected by adults, and that larvae also were feeding on the roots. Leaf damage was noted on the following: *Hedera canariensis*, *Spathiphyllum* sp., and *Fatshedera lizei*, but no larvae were found at the roots. *Rhoicissus rhomboidea*, growing in close proximity to heavily infested plants of *Cissus antarctica*, were not affected.

CONTROL ON CYCLAMEN UNDER GLASS

SMITH (1932) found that larvae were killed by the addition of lead arsenate to the potting compost at the rate of 1 or 2 oz. per bushel. Recent experiments have been carried out to test the effectiveness of DDT, BHC, aldrin, etc., against all stages in the life-history of the weevil by, amongst others, LOOSJES (1951) working on cyclamen in Holland, and PRITCHARD (1952) on azaleas in America. Results so far have been rather variable and there is still no standard recommendation.

Preliminary observations were made in 1953 on a crop that had been sown in boxes and beds of unsterilized soil in early August 1952. The plants, when first examined in mid-March 1953, were in 2-inch pots (72's) and ready for the second move to 3-inch pots (60's). They would normally be re-potted a third time in June into 4½-inch (48's) and 3½-inch (large 60's) pots, the proportion of each depending on the condition of the plants and trade prospects.

The simplest method of control appeared to be the application of an insecticide to kill larvae already in the soil and those which would hatch from eggs laid subsequently. The following materials, lead arsenate, DDT, BHC, toxaphene, chlordane, dieldrin and aldrin as dusts, were mixed with the additional compost required at the second re-potting on March 20, 1953. Dieldrin was also applied as a liquid after the final re-potting on June 16. Rates of application are given in Table II.

TABLE II

Insecticide	*Formulation*	*Rate of application per bushel of compost*
1. Lead arsenate	—	2 oz.
2. DDT	5·00% dust	6 oz.
3. BHC	3·50% ,,	½ oz.
4. Toxaphene	2·00% ,,	½ oz.
5. Chlordane	5·00% ,,	½ oz.
6. Dieldrin	0·89% ,,	½ oz.
7. Dieldrin	0·89% ,,	4 oz.
8. Dieldrin	15·00% emulsion	3 fl. oz./10 gals. (0·025%)
9. Aldrin	0·89% dust	½ oz.
10. Aldrin	0·89% ,,	4 oz.
11. Control I	—	—
12. Control II	—	—

There were 100 plants per treatment and two batches of 100 plants set aside as controls. Each insecticide was mixed with 1 bushel of unsterilized compost, this quantity being sufficient to re-pot 100 plants from 2-inch to 3-inch pots. The liquid insecticide was applied by a watering can, and approximately 2 gallons of diluted wash were required for the 100 pots.

After treatment, the number of plants damaged, i.e. plants wilting and with larvae at their roots, were noted by the nursery foreman and all treatments were inspected at monthly intervals. The experiment involved some 1,200 plants during a period when there was a strong market demand for them. It was necessary therefore, as soon as appreciable losses were noted in any treatment, to dispose of the rest of the plants in that batch. Plants having received treatments which appeared more effective were retained on the nursery, so that observations could be carried through to the end of the year. Thus plants receiving dieldrin dusts (2 rates) and aldrin dust (high rate) were finally examined on December 17, 1953. Plant losses during the autumn, and final results, are given in Table III and these numbers must be considered minimal for all the less effective treatments.

TABLE III

Treatment	*Plant losses noted during months*				*Minimum percentage of plants damaged by larvae*
	Aug.	*Sept.*	*Oct.*	*Nov.*	
1. Lead arsenate	1	0	0	*	1
2. DDT	1	0	0	*	1
3. BHC	4	2	8	*	14
4. Toxaphene	3	2	1	*	6
5. Chlordane	0	1	2	*	3
6. Dieldrin ½ oz.	0	0	0	1	1
7. Dieldrin 4 oz.	0	0	0	0	0
8. Dieldrin liquid	0	1	0	*	1
9. Aldrin ½ oz.	0	1	3	*	4
10. Aldrin 4 oz.	0	0	0	0	0
11. Control I	0	9	5	1	15
12. Control II	2	1	2	*	5
Total loss per month	11	17	21	2	

0 = *no damage;* * *plants sold.*

The results showed that lead arsenate, DDT, aldrin and dieldrin were worth further trial though the actual number of plants lost from some treatments was possibly higher than the figures indicate. No obvious phytotoxic effects were noted following any treatment.

The cheapest of the more promising materials, namely dieldrin, was used in 1954 for a further trial. A thousand seedlings (autumn-sown) were transplanted into 3-inch pots in early February 1954 and a 1½ per cent dieldrin dust was mixed in with the additional soil required, at the rate of 4 oz. dust per bushel of compost. At the same time, 1,000 untreated control plants were brought into the same house. By late August 1954, one plant of the treated batch had died due to larval

feeding but no further losses occurred up to the time the plants were sold in mid-December. In the control batch, over 100 plants were killed by larval feeding in the same period, i.e. early February to mid-December.

This trial demonstrated fairly conclusively that dieldrin dust was giving an excellent control, and had no harmful effect on cyclamen when applied at the rate of 1·70 grammes active ingredient per bushel of compost.

For the 1954–5 crop, a 1¼ per cent aldrin dust was used at 3 oz. per bushel of compost in place of the dieldrin dust, which was not commercially available, and this proved equally effective when mixed in with the seed bed or re-potting compost.

CONTROL ON FOLIAGE PLANTS UNDER GLASS

On the nursery, the only control measures taken against adult weevils on foliage plants had been an occasional DDT spray, but these appeared ineffective and other methods were tested in November 1953. These included a poison bait of crushed apple and bran mixed with lead arsenate, and a 20 per cent wettable DDT powder dusted over the coke breeze on which the pots stood, but damage continued and neither measure appeared effective. Finally, a parathion smoke was used and 12 hours after treatment about 200 dead beetles were collected from the floor and staging of the house; fumigation was repeated 7 days later when about another 100 adults were found. No phytotoxic effects were noted. This treatment was repeated early in 1954 and fewer adults were found after each fumigation.

Small, rooted, cuttings of *Cissus antarctica* affected by young weevil larvae were watered with BHC (10 per cent gamma isomer) at ¾ pint in 100 gals. water, and observations made one week later showed that there had been a good kill of larvae and that the plants had made fresh root growth.

Summary

Severe damage by Vine Weevil larvae to cyclamen and foliage plants on a commercial holding led to observations being made on this insect's life-history and host range under glass.

Good protection against larval damage to cyclamen was obtained by the addition of 3 oz. of a 1¼ per cent aldrin dust (1·06 grammes actual aldrin) or 4 oz. of a 1½ per cent dieldrin dust (1·70 grammes actual dieldrin) to each bushel of the potting compost as it was made up or well mixed in afterwards; this appeared to give protection against larvae for some 6 to 8 months.

Numbers of adults were greatly reduced by parathion smokes and where non-bulbous plants were already infested by larvae, a 0·01 per cent gamma BHC drench (¾ pint of 10 per cent. emulsion to 100 gals. water) gave a good kill.

ACKNOWLEDGEMENTS

The author wishes to thank DR. H. C. GOUGH at whose suggestion this work was undertaken; T. ROCHFORD of Turnford, Herts., for his interest and use of facilities on his nursery; Shell Chemicals Ltd. for samples of aldrin and dieldrin.

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NOTES FROM FELLOWS

Yuccas in January

I HAVE in my garden two 25-year-old yuccas. I think with considerable diffidence that they should be classified among SPRENGER's hybrids. They are not very regular in flowering but oblige on an average about one year in three. When they do flower they flower in July. This year (1959), contrary to expectation, they failed to flower in spite of the hot weather.

Today, December 22, I have observed two large and rapidly growing flower spikes on each plant. They are well budded and given a fortnight's mild weather free of frost—which can hardly be expected—they should blossom in early January.

Can any fellow explain to me why these yuccas should suddenly behave as if they had been transported into the Southern Hemisphere?

L. PALMER

Headbourne Worthy,
Winchester.

WISLEY TRIALS, 1959

ANEMONES

VARIETIES OF ANEMONE JAPONICA

Twelve varieties of *Anemone japonica* were received for trial at Wisley in 1958. Three plants of each variety were planted on January 14, 1958.

The trial was inspected by a sub-committee of the Floral Committee A on August 28, 1959, and on its recommendation the Council has made the following awards to varieties of *Anemone japonica*.

The number in brackets after the description of the variety was that under which it was grown in the trial.

LORELEI. (Sent by Messrs. Wallace & Barr, The Old Gardens, Bayham Road, Tunbridge Wells, Kent.) **A.M.** August 28, 1959. Plant 3¾ to 4 feet high, 1½ feet spread, vigorous, erect; foliage medium green; flower stems strong and upright, medium green slightly tinged purplish brown; flowers 3½ to 3¾ inches diameter, semi-double; florets broad, slightly incurving, margins crenate and slightly waved, Phlox Purple (H.C.C. between 632/2 and 632/3); stamens golden yellow. [7]

ALBA. (Sent by Messrs. Wallace & Barr.) **H.C.** August 28, 1959. Plant 4 feet high, 2 to 2½ feet spread, vigorous; foliage dark green; flower stems stout, upright, medium green; flowers 3 to 3½ inches diameter, single; florets broad, rounded, slightly incurving, margins slightly crenate, white; stamens golden yellow. [1]

KRIEMHILDE. (Sent by Messrs. Wallace & Barr.) **H.C.** August 28, 1959. Plant 3 feet high, 1½ feet spread, vigorous, erect, compact; foliage medium green; flower stems strong, upright, medium green slightly tinged purplish bronze; flowers 3½ inches diameter, double; florets long, narrow, slightly pointed, slightly incurving, Orchid Purple (H.C.C. between 31/2 and 31/3); stamens golden yellow. [8]

SEPTEMBER CHARM. (Sent by Messrs. Blooms Nurseries Ltd., Bressingham, Diss, Norfolk.) **H.C.** August 28, 1959. Plant 3¾ feet high, 1½ feet spread, vigorous, erect; foliage medium green; flower stems stout, upright, medium green tinged purplish bronze; flowers 3½ inches diameter, semi-double; florets long, narrow, slightly pointed, incurving, Phlox Purple (H.C.C. between 632/1 and 632/3). [6]

BEGONIAS

VARIETIES OF BEGONIA MULTIFLORA, GROWN FROM TUBERS

Twelve stocks of *Begonia multiflora* were received for trial at Wisley in 1959. Twenty-five tubers of each variety were grown. The tubers were boxed in seed trays and started into growth in gentle heat on March 16, 1959. The plants were gradually hardened off and planted out in the open where they were to flower on June 2, 1959, in rows 15 inches apart, the plants being spaced 12 inches apart in the rows.

The trial was inspected by a sub-committee of the Floral Committee A on September 18, 1959, and on its recommendation the Council has made the following awards to varieties of *Begonia multiflora* grown from tubers.

The number in brackets after the description of the variety was that under which it was grown in the trial.

FRENE EYSSER. (Sent by S. M. Gault, Esq., Superintendent's Office, Inner Circle, Regent's Park, London, N.W.1.) **A.M.** September 18, 1959. Plant 8 to 10 inches high, 8 to 10 inches spread, vigorous, free-flowering; foliage light to medium glossy green. Flowers 2½ inches diameter, double; florets broad, flat, entire, a very clear delicate shade near Fire Red (H.C.C. between 15 and 15/1). [10]

SPITFIRE. (Raised by Georges Braetens, and sent by S. M. Gault, Esq.) **A.M.** September 18, 1959. Plant 10 to 12 inches high, 10 to 13 inches spread, vigorous, free-flowering; foliage medium green. Flowers 2¾ inches diameter, double; florets broad, flat, entire, a clear bright red near Vermilion (H.C.C. 18). [11]

TUBEROUS VARIETIES FOR BEDDING, GROWN FROM SEED

Fifty-one stocks of begonias were received for trial at Wisley in 1959. The trial was sown under glass on January 30, 1959, and the resulting seedlings were pricked off into seed trays on March 12, 1959. The plants were planted out in the open where they were to flower on June 5, 1959. The stocks were planted in rows 15 inches apart, the plants being spaced 9 to 12 inches apart in the rows.

The trial was inspected by a sub-committee of the Floral Committee A on September 18, 1959, and on its recommendation the Council has made the following awards to tuberous begonias for bedding, grown from seed.

The number in brackets after the description of the variety was that under which it was grown in the trial.

LANGDON'S WHITE. (Raised, introduced and sent by Messrs. Blackmore & Langdon, Twerton Hill Nursery, Bath, Somerset.) **A.M.** September 18, 1959. Plant 10 to 14 inches high, 9 to 14 inches spread, vigorous, compact, free-flowering; foliage large, medium glossy green. Flowers 4½ to 5½ inches diameter, double; florets large, incurving, entire, white. [3]

LANGDON'S FRILLED DOUBLE-WHITE. (Raised, introduced and sent by Messrs. Blackmore & Langdon.) **H.C.** September 18, 1959. Plant 10 to 12 inches high, 7 to 10 inches spread, vigorous, compact, free-flowering; foliage large, light to medium green. Flowers 4¾ to 5¼ inches diameter, double; florets broad, deeply serrated, slightly frilled, white, cream at centre. [4]

LANGDON'S ROSE. (Raised, introduced and sent by Messrs. Blackmore & Langdon.) **H.C.** September 18, 1959. Plant 10 to 12 inches high, 12 inches spread, vigorous, compact, free-flowering; foliage large, medium green. Flowers 5 to 6 inches diameter, double; florets broad, slightly waved a shade of Neyron Rose (H.C.C. between 623 and 623/1). [33]

LANGDON'S WHITE PICOTEE-EDGED. (Raised, introduced and sent by Messrs. Blackmore & Langdon.) **H.C.** September 18, 1959. Plant 8 to 10 inches high, 9 to 13 inches spread, erect, compact, free-flowering; foliage medium green. Flowers 5 to 5½ inches diameter, double; florets broad, margins slightly incurving, slightly serrated and slightly waved, ground white with varying widths of Carmine (H.C.C. 21) at margin. [5]

BORDER CARNATIONS

Sixty-four varieties of border carnations were grown at Wisley during 1959. Five plants of each variety were planted on October 2, 1958.

The Joint Border Carnation and Picotee Committee of The Royal Horticultural Society and The British National Carnation Society inspected the trial on July 9, 1959, and on its recommendation The Royal Horticultural Society and The British National Carnation Society have made jointly the following awards to border carnations as varieties for the open border.

The number in brackets after the description of the variety was that under which it was grown in the trial.

DOWNS UNIQUE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.) **A.M.** July 9, 1959. Described R.H.S. JOURNAL, **82**, pp. 492 and 493 (**H.C.** 1957). [45]

PINK MODEL. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **A.M.** July 9, 1959. Plant very vigorous with stout stems, 24 inches long. Flowers 2½ to 2¾ inches diameter, freely produced, centre crowded, scent slight clove; petals broad, entire, a clear colour near Porcelain Rose (H.C.C. 620/1); calyx strong (**H.C.** 1952). [23]

SCARLET FRAGRANCE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **A.M.** July 9, 1959. Described R.H.S. JOURNAL, **82,** p. 493 (**H.C.** 1958). [15]

SUSSEX JOY. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **A.M.** July 9, 1959. Described R.H.S. JOURNAL, **82,** p. 493 (**H.C.** 1957). [56]

COTTAGE PRIMROSE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** July 9, 1959. Plant vigorous with stout stems, 20 to 24 inches long. Flowers 2¾ inches diameter, very freely produced, centre full, scent slight clove; petals broad, entire, Primrose Yellow (H.C.C. between 601/3 and 601/2); calyx fairly strong (**C.** 1954). [1]

DOWNS CLOVE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** July 9, 1959. Plant vigorous with stout stems, 24 to 30 inches long. Flowers 2¾ inches diameter, freely produced, centre crowded, scent very strong clove; petals broad, entire, a rich velvety red near Cardinal Red (H.C.C. 822); calyx strong (**C.** 1954). [20]

PIERRETTE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** July 9, 1959. Described R.H.S. JOURNAL, **81,** p. 193 (**C.** 1955). [31]

SUSSEX FORTUNE. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** July 9, 1959. Plant very vigorous with fairly stout stems, 24 inches long. Flowers 2½ to 2¾ inches diameter, freely produced, centre full, scent strong clove; petals broad, slightly serrated, a velvety shade of Geranium Lake (H.C.C. 20) flaked Oxblood Red (H.C.C. 00823); calyx fairly strong. [59]

COTTAGE JESTER. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **C.** July 9, 1959. Plant vigorous with stout stems, 18 to 20 inches long. Flowers 2¼ to 2½ inches diameter, very freely produced, centre full, scent fairly strong clove; petals broad, entire, ground Primrose Yellow (H.C.C. between 601/2 and 601/3) finely striped Scarlet (H.C.C. 19); calyx fairly strong. [5]

MENDIP HUNTSMAN. (Raised, introduced and sent by Mr. S. J. Cook, Vistan, Victoria Grove, Shepton Mallet, Somerset.) **C.** July 9, 1959. Plant vigorous with fairly stout stems, 30 to 34 inches long. Flowers 2¼ to 2¾ inches diameter, fairly freely produced, centre full, scent strong clove; petals broad, entire, Orient Red (819/1); calyx fairly strong. [14]

GARDEN PINKS

Eighty-six varieties of garden pinks were grown in the trial during 1959. Ten of these varieties were planted on small rocks on a site near the Alpine House in the Rock Garden. The remaining varieties were planted in an open border neighbouring the lavender hedge near the frame-yard wall. Five plants of each variety were grown.

The Joint Dianthus Committee of The Royal Horticultural Society, The Alpine Garden Society and The British National Carnation Society

inspected the trial on June 8 and 19, 1959, and on its recommendation The Royal Horticultural Society, The Alpine Garden Society and The British National Carnation Society have made jointly the following awards to garden pinks.

The number in brackets after the description of the variety was that under which it was grown in the trial.

DAINTY MAID. (Raised, introduced and sent by Mr. S. T. Byatt, Ivythorpe, Hanworth Road, Hampton, Middlesex.) **F.C.C.** June 19, 1959, as a variety for the rock garden. Described R.H.S. JOURNAL, **81**, p. 195 (**A.M.** 1957). [8]

SWANLAKE. (Raised, introduced and sent by Messrs. Lindabruce Nurseries Ltd., Freshbrook Road, Lancing, Sussex.) **A.M.** June 8, 1959, as a variety for the open border. Described R.H.S. JOURNAL, 84, p. 32 (**H.C.** 1958). [58]

TIMOTHY. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd., Wivelsfield Nurseries, Haywards Heath, Sussex.) **A.M.** June 19, 1959, as a variety for the open border. Described R.H.S. JOURNAL, **81**, p. 504 (**H.C.** 1956). [45]

APOLLO. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** June 8, 1959, as a variety for the rock garden. Plant vigorous, compact bushy erect habit; flower stems 6 to 8 inches long, slender, rigid, very erect; flowers 1¼ inches diameter, double, centre tufted, scent slight clove; petals broad, cut, deeply serrated, Magenta Rose (H.C.C. 027) when first open, changing to a shade of Magenta (H.C.C. between 27 and 27/1) when fully open, faint maroon marking at base of petal; calyx strong. [5]

GLORIOUS. (Raised, introduced and sent by Messrs. Lindabruce Nurseries Ltd.) **H.C.** June 19, 1959, as a variety for the open border. Plant vigorous, bushy erect habit; flower stems 18 to 19 inches long, stout, rigid; flowers 2 inches diameter, double, centre full, scent strong clove; petals broad, very finely serrated, Rhodamine Pink (H.C.C. 527/2) zoned Chrysanthemum Crimson (H.C.C. 824/1); calyx strong. [70]

HELEN. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** June 19, 1959, as a variety for the open border. Plant vigorous, compact erect habit; flower stems 14 to 16 inches long, slender, very rigid; flowers 2¼ inches diameter, double, centre full, scent strong clove; petals broad, finely serrated, margins slightly incurving, a shade near Porcelain Rose (H.C.C. between 620 and 660/1); calyx strong. [49]

THOR. (Raised, introduced and sent by Messrs. Allwood Bros. Ltd.) **H.C.** June 8, 1959, as a variety for the rock garden. Plant vigorous, compact bushy erect habit; flower stems 6 to 7 inches long, slender, rigid; flowers 1¼ inches diameter, double, centre full, scent strong clove; petals broad, serrated, a deep glowing red between Cardinal Red (H.C.C. 822) and Rose Red (H.C.C. 724); calyx strong. [6]

SWEET PEAS

Seventy stocks of sweet peas were received at Wisley in the autumn of 1958. These, with fifty control varieties, were sown in boxes on October 8, 1958. The resulting seedlings were potted into 3-inch pots on November 19 and the pots were plunged in ashes in a cold frame for the winter. In the spring the plants were gradually hardened off in preparation for planting out,

which took place on March 24, 1959. Twenty-two plants of each stock were grown as follows: (*a*) ten plants of each stock naturally grown, up hazel sticks, and (*b*) twelve plants of each stock cordon-grown, up bamboo canes.

During the winter of 1958–9, the site was prepared by double-digging strips 4 feet wide leaving a 2-foot-wide path between each cultivated strip. The rows of plants were then sited down the middle of the cultivated portion. Farmyard manure was incorporated into the bottom spit at the rate of one barrow-load of well-rotted manure to each 10-yard run of trench. In both the top and the bottom spits 2 oz. per sq. yard of a general fertilizer and 1 oz. per sq. yard of dried seaweed manure were applied to each 10-yard run of trench. After planting, a dressing of peat was worked into the top 2 inches of soil round the plants.

The Joint Sweet Pea Committee of The Royal Horticultural Society and The National Sweet Pea Society inspected the trial on June 16 and 24, 1959, and on its recommendation The Royal Horticultural Society and The National Sweet Pea Society have made jointly the following awards to sweet peas as varieties for exhibition purposes.

The measurements given are those which were taken from the plants cordon-grown up bamboo canes.

The number in brackets after the description of the stock was that under which it was grown in the trial.

ORANGE FLASH. (Raised and sent by Messrs. Robert Bolton & Son, Birdbrook, near Halstead, Essex.) **A.M.** June 24, 1959. Plant 6½ feet high, vigorous; flower stem 16 inches long, stiff, an average of four flowers per stem. Flowers 2½ inches across, 1½ inches deep, well spaced, standards slightly reflexed and waved, wings spreading and waved, ground creamy white heavily striped Vermilion (H.C.C. 18/1); scent good. [38]

PEARL. (Raised and sent by Messrs. Robert Bolton & Son.) **A.M.** June 24, 1959. Plant 5½ feet high, vigorous; flower stem 18 inches long, stiff, an average of four flowers per stem. Flowers 2⅝ inches across, 1⅜ inches deep, well spaced, standards slightly reflexed and waved, wings spreading and waved, ground white lightly overlaid Camellia Rose. (H.C.C. 622/2); scent strong. [52]

RED ADMIRAL. (Raised and sent by Messrs. W. J. Unwin Ltd., Histon, Cambridge.) **A.M.** June 24, 1959. Plant 6½ feet high, vigorous; flower stem 15 inches long, stiff, an average of four flowers per stem. Flowers 2⅞ inches across, 1½ inches deep, well spaced, standards waved, wings spreading and waved, deep glowing crimson near Chrysanthemum Crimson (H.C.C. 824); scent strong. [28]

BOUQUET. (Raised and sent by Messrs. W. J. Unwin Ltd.) **H.C.** June 24, 1959. Plant 5½ feet high, vigorous; flower stem 18 to 20 inches long, stiff, an average of four flowers per stem. Flowers 2½ inches across, 1½ inches deep, well spaced, standards slightly reflexed and much waved, wings spreading and much waved, a shade between Mauve (H.C.C. 633) and Petunia Purple (H.C.C. 32/1); scent good. [1]

JOHN MCGREGOR. (Raised and sent by Messrs. Carters Tested Seeds Ltd., Raynes Park, London, S.W.20.) **H.C.** June 24, 1959. Plant 6 feet high, vigorous; flower stem 14 inches long, very stiff, an average of four flowers per stem. Flowers 2⅞ inches across, 1⅝ inches deep, well spaced, standards waved, wings spreading and waved, a colour near Geranium Lake (H.C.C. between 20 and 20/1); scent strong. [22]

MY FAVOURITE. (Raised and sent by Messrs. W. Atlee Burpee Co., Burpee Building, Hunting Park Avenue, at 18th Street, Philadelphia 32, U.S.A.) **H.C.** June 24, 1959. Plant 6½ feet high, vigorous; flower stem 14 inches long, stiff, an average of four flowers per stem. Flowers 2 3/16 inches across, 1¾ inches deep, well spaced, standards waved, wings spreading and waved, ground pale cream, deep cream in bud stage, lightly overlaid and veined Persian Rose (H.C.C. between 628/1 and 628/3); scent strong. [48]

PERENNIAL GAILLARDIAS, GROWN FROM SEED

Nineteen stocks of perennial gaillardias were received for trial at Wisley in 1958. The trial was sown in the open ground in shallow drills spaced 1 foot apart on June 13, 1958. The resulting seedlings were planted out into the open, where they were intended to flower, in rows 2 feet apart, spacing the plants 1½ feet apart in the rows, on July 29, 1958.

The trial was inspected by a sub-committee of the Floral Committee A on June 19 and July 3, 1959, and on its recommendation the Council has made the following awards to perennial gaillardias grown from seed.

The number in brackets after the description of the variety was that under which it was grown in the trial.

GOBLIN IMPROVED. (Raised, introduced and sent by Messrs. L Clause, S.A., Bretigny-sur-Orge, France.) **A.M.** July 3, 1959. Plants 16 to 20 inches high, 24 to 30 inches spread, vigorous, very compact, very free-flowering; flower stems 9 to 10 inches long, stiff and very erect; flowers 3 to 3½ inches diameter, single, a lighter shade of Cardinal Red (H.C.C. 822/1) tipped Lemon Yellow (H.C.C. 4); disc ¾ to 1¼ inches diameter. [2]

TORCHLIGHT. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd., 26/29 Drury Lane, Covent Garden, London, W.C.2.) **A.M.** June 19, 1959. Plants 2½ to 3½ feet high, 1½ to 2 feet spread, vigorous, compact, free-flowering; flower stems 18 to 24 inches long, stiff and erect; flowers 3¾ to 4 inches diameter, semi-double, a colour near Cardinal Red (H.C.C. 822) tips Lemon Yellow (H.C.C. 4); disc 1¼ inches diameter. [10]

BURGUNDY. (Raised, introduced and sent by Messrs. E. Benary Ltd., Hann-Munden, Germany.) **H.C.** July 3, 1959. Plants 4 feet high, 2½ to 3 feet spread, vigorous, compact, free-flowering; flower stems 18 to 22 inches long, stiff and erect; flowers 3½ inches diameter, semi-double, a colour near Cardinal Red (H.C.C. 822/1) becoming slightly paler towards tips; disc 1¼ inches diameter. [16]

BURGUNDY IMPROVED. (Raised, introduced and sent by Messrs. L. Clause, S.A.) **H.C.** June 91, 1959. Plants 3½ feet high, 2 to 2½ feet spread, vigorous, compact, free-flowering; flower stems 16 to 18 inches long, stiff and erect; flowers 2¾ inches diameter, semi-double, a deep red colour, a shade between Cardinal Red (H.C.C. 822/1) and Chrysanthemum Crimson (H.C.C. 824/1); disc 1½ inches diameter. [15]

DAZZLER. (Raised, introduced and sent by Messrs. Watkins & Simpson Ltd.) **H.C.** June 19, 1959. Plants 2½ to 3 feet high, 2 to 2½ feet spread, vigorous, compact, very free-flowering; flower stems 18 to 20 inches long, stiff and very erect; flowers 3½ to 3¾ inches diameter, single, a colour near Cardinal Red (H.C.C. 822) tipped Lemon Yellow (H.C.C. 4); disc 1¼ inches diameter. [7]

GOBLIN. (Raised, introduced and sent by Messrs. E. Benary Ltd.) **H.C.** July 3, 1959. Plants 18 to 24 inches high, 18 to 24 inches spread, vigorous, fairly compact, very free-flowering; flower stems 8 to 10 inches long, fairly stiff and erect; flowers 3½ to 4 inches diameter, single, a lighter shade of Cardinal Red (H.C.C. 822/1) tipped Lemon Yellow (H.C.C. 4); disc ¾ to 1 inch diameter. [1]

MONARCH STRAIN MIXED. (Raised, introduced and sent by Messrs. Hurst & Son Ltd., Kelvedon House, 60/64 Artillery Lane, London, E. 1.) **H.C.** July 3, 1959. Plants 3½ feet high, 2 to 2½ feet spread, vigorous, compact, free-flowering; flower stems 18 to 24 inches long, stiff and erect; flowers 3½ to 4 inches diameter, semi-double, bluish scarlet and yellow, amount of these colours varying in the flowers; disc 1 to 1¼ inches diameter. [18]

PERENNIAL HYBRIDS MIXED. (Sent by Messrs. Nutting and Sons Ltd., Merstham, Surrey.) **H.C.** July 3, 1959. Plants 3½ to 4 feet high, 2½ to 3 feet spread, vigorous, compact, free-flowering; flower stems 18 to 24 inches long, stiff and erect; flowers 3½ inches diameter, semi-double, bluish scarlet and yellow, amount of these colours varying in the flowers; disc 1¼ inches diameter. [19]

SATURN. (Raised, introduced and sent by Messrs. L. Clause, S.A.) **H.C.** June 19, 1959. Plants 3 to 3½ feet high, 1½ to 2 feet spread, vigorous, fairly compact, free-flowering; flower stems 20 to 30 inches long, stiff and erect; flowers 3½ to 4 inches diameter, semi-double, a colour near Cardinal Red (H.C.C. 822/1) outer part of florets Buttercup Yellow (H.C.C. 5); disc 1¼ inches diameter. [8]

TOKAJ. (Raised, introduced and sent by Messrs. E. Benary Ltd.) **H.C.** July 3, 1959. Plants 3¾ to 4 feet high, 1½ to 2 feet spread, vigorous, compact, free-flowering; flower stems 15 to 20 inches long, stiff and very erect; flowers 3½ inches diameter, semi-double, a colour near Cardinal Red (H.C.C. 822/1) at base of florets changing to light coppery bronze towards tips; disc 1½ inches diameter. [11]

GAILLARDIAS, GROWN FROM PLANTS

Three varieties of gaillardias were received for trial at Wisley in 1959. Three plants of each variety were planted in the mixed herbaceous and shrub border on March 12, 1959.

The trial was inspected by a sub-committee of the Floral Committee A on July 3, 1959, and on its recommendation the Council has made the following award to a gaillardia, grown from plants.

The number in brackets after the description of the variety was that under which it was grown in the trial.

MANDARIN. (Raised by Mr. Alan Bloom, introduced and sent by Messrs. Bloom's Nurseries Ltd., Bressingham, Diss, Norfolk.) **H.C.** July 3, 1959. Plants 3½ feet high, 2 feet spread, vigorous, compact, erect, very free-flowering; flower stems 18 to 24 inches long, very stiff and erect; flowers 3½ inches diameter, semi-double, a slightly deeper shade of Mandarin Red (H.C.C. 17/1), florets tipped Buttercup Yellow (H.C.C. 5); disc 1 inch diameter. [2]

PAEONIES

Seventy-five varieties of paeonies were grown in the trial during 1959. Of these forty-five were from American growers having been imported specially for the trial during the winters of 1953–4–5; the remainder were received either from British or Dutch growers.

The trial was planted on the present site near the Bowles Memorial Garden on October 15, 1957.

The trial was inspected by a sub-committee of the Floral Committee A on May 15, June 3 and 19, 1959, and on its recommendation the Council has made the following awards to paeonies as varieties for garden decoration.

The number in brackets after the description of the variety was that under which it was grown in the trial.

ROBERT AUTEN. (Raised, introduced and sent by Mr. Edward Auten Jnr., Princeville, Illinois, U.S.A.) **A.M.** June 3, 1959. Plant 34 inches tall, vigorous, erect and compact habit; flower stems 30 inches long, stout and rigid; flowers 5½ to 6 inches diameter, double, scented; petals broad, cut, a deeper richer shade of Chrysanthemum Crimson (H.C.C. 824). [51]

LATE WINDFLOWER (Raised and introduced by the late Professor A. P. Saunders, and sent by Miss Sylvia Saunders, Clinton, New York, U.S.A.) **H.C.** May 15, 1959. Plant 33 inches tall, vigorous, fairly erect habit; flower stems 24 to 30 inches long, slender; flowers 3½ inches diameter; petals slightly incurving, borne in two rows, inner row smaller than outer row, white, stamens golden yellow. [2]

LOVELY ROSE. (Raised and introduced by the late Professor A. P. Saunders, and sent by Miss Sylvia Saunders.) **H.C.** June, 3 1959. Plant 27 inches tall, vigorous, erect and compact habit; flower stems 24 inches long, stout and erect; flowers 5¼ inches diameter, semi-double; petals large, incurving, Neyron Rose (H.C.C. 623) at base of petal changing through Neyron Rose (H.C.C. 623/1) to Porcelain Rose (H.C.C. 620/2) at margins, stamens golden yellow. [34]

TROLLIUS

Forty-eight stocks of trollius were grown at Wisley in 1959. Three plants of each stock were planted on November 26, 1956.

The trial was inspected by a sub-committee of the Floral Committee A on May 4 and 15, 1959, and on its recommendation the Council has made the following awards to varieties of trollius.

The number in brackets after the description of the variety was that under which it was grown in the trial.

BESSIE WALKER. (Sent by The Director, Arboretum, Gen. Foulkesweg 37, Wageningen, Holland.) **A.M.** May 4, 1959. Plants 24 to 26 inches high, vigorous, compact, erect, very free-flowering; flower stems strong and upright, fairly stout; flowers 2½ inches diameter, semi-double; florets broad, incurving, Buttercup Yellow (H.C.C. 5/1) with narrow orange centre petals. [31]

EUROPAEUS SUPERBUS. (Sent by The Director, Arboretum, Wageningen, and Messrs. Wallace & Barr, The Old Gardens, Bayham Road, Tunbridge Wells, Kent.) **A.M.** May 15, 1959. Described R.H.S. JOURNAL, **83**, p. 443 (**H.C.** 1958). [36 and 37]

FEUERTROLL. (Raised by Messrs. Goos & Koenemann, Weider Walluf, Germany, and sent by The Director, Arboretum, Wageningen.) **A.M.** May 4, 1959. Plants 24 inches high, very compact, very free-flowering; flower stems fairly stiff and upright, medium thickness; flowers 1¾ inches diameter, semi-double; florets incurving, slightly serrated at margins, Saffron Yellow (H.C.C. 7) with long broad centre petals of Orpiment Orange (H.C.C. 10). [20]

GOLDEN MONARCH. (Sent by Messrs. Bloom's Nurseries Ltd., Bressingham, Diss, Norfolk, and The Director, Arboretum, Wageningen.) **A.M.** May 4, 1959. Plants 24 inches high, vigorous, compact, erect, free-flowering; flower stems erect, very stout; flowers 2¼ to 2½ inches diameter, semi-double; florets broad, incurving, rounded, Buttercup Yellow (H.C.C. 5/1). [24 and 25]

ORANGE CREST. (Sent by The Director, Arboretum, Wageningen.) **A.M.** May 15, 1959. Plants 24 inches high, very vigorous, compact, erect, very free-flowering; flower stems erect, fairly stout; flowers 2 inches diameter, semi-double; florets broad, incurving, Saffron Yellow (H.C.C. 7), some petaloid stamens Orpiment Orange (H.C.C. 10). [10]

ORANGE PRINCESS. (Raised by Messrs. J. Cocker, and sent by The Director, Arboretum, Wageningen.) **A.M.** May 4, 1959. Plants 27 inches high, vigorous, compact, very free-flowering; flower stems erect, medium thickness; flowers 1¾ inches diameter, semi-double; florets broad, incurving, Saffron Yellow (H.C.C. 7). [33]

ASIATICUS GIGANTEUS. (Sent by The Director, Arboretum, Wageningen, Holland.) **H.C.** May 15, 1959. Plants 24 inches high, very compact, erect, free-flowering; flower stems stiff and erect, stout; flowers 1¾ inches diameter, semi-double; florets broad, incurving, slightly serrated at margins, Cadmium Orange (H.C.C. 8). [19]

GOLDEN ELF. (Sent by The Director, Arboretum, Wageningen, Holland.) **H.C.** May 4, 1959. Plants 24 inches high, very compact, erect, very free-flowering; flower stems erect, fairly slender; flowers 1¾ inches diameter, semi-double; florets broad, incurving, Saffron Yellow (H.C.C. 7), small orange centre petals. [22]

JAPONICUS EXCELSIOR. (Sent by The Director, Arboretum, Wageningen, Holland.) **H.C.** May 4, 1959. Plants 24 inches high, vigorous, fairly compact, erect, free-flowering; flower stems stiff and upright, fairly stout; flowers 2 inches diameter, semi-double; florets incurving, margins crenate, Tangerine Orange (H.C.C. between 9 and 9/1), many broad petaloid stamens Orpiment Orange (H.C.C. 10). [14]

ORANGE GLOW. (Raised by Mr. W. van de Berg, Leiden, Holland, and sent by The Director, Arboretum, Wageningen.) **H.C.** May 4, 1959. Plants 22 inches high, compact, erect, free-flowering; flower stems upright, fairly stout; flowers 2 to 2½ inches diameter, semi-double; florets very broad, incurving, Buttercup Yellow (H.C.C. 5), with a few narrow orange petaloid stamens. [16]

CLIMBING PENCIL-PODDED AND STRINGLESS FRENCH BEANS

Sixteen stocks of climbing pencil-podded and stringless French beans were received for trial at Wisley in 1959. The trial was sown on May 11, 1959, in drills 1½ inches deep and 5 feet apart; the individual beans were

spaced 4½ inches apart in the drills. To control bean seed fly (*Delia cilicrura*), the drills were treated before sowing with 1½ per cent. Aldrin dust at the rate of 1 ounce per 10 yard run of drill. After germination the seedlings were thinned to 9 inches apart. Hazel sticks were used to support the plants.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on August 6 and 13, 1959, and on its recommendation the Council has made the following awards to climbing pencil-podded and stringless French beans.

The number in brackets after the description of the variety was that under which it was grown in the trial.

EUROLANDIA. (Raised, introduced and sent by Messrs. Gebr. van den Berg N.V., Naaldwijk, Holland.) **F.C.C.** August 13, 1959. Plant 6 to 6½ feet high, much branched, very productive; foliage dark green; pods 5½ to 6 inches long, ⅝ inch wide, light green, slightly curved forward, oval, borne in large loose clusters averaging 5 to 7 pods to a cluster; ripe seed white. [14]

GREEN CANFREEZ. (Raised, introduced and sent by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex.) **H.C.** August 13, 1959. Plant 5½ to 6 feet high, branched, productive; foliage light to medium green; pods 6 to 6¾ inches long, ⅝ inch wide, light to medium green flecked purple, straight, concave near point, round, borne in small compact clusters averaging 4 to 6 pods to a cluster; ripe seed black. [4]

SAMSON. (Raised, introduced and sent by Messrs. Abraham Sluis Ltd., P.O. Box 2, Enkhuizen, Holland.) **H.C.** August 13, 1959. Plant 7 feet high, much branched, productive; foliage dark green; pods 8½ to 9 inches long, ½ inch wide, medium green, straight, concave near point, oval, borne in small compact clusters averaging 4 pods to a cluster; ripe seed white. [2]

DWARF PENCIL-PODDED AND STRINGLESS BEANS

Fifty-six stocks of dwarf pencil-podded and stringless beans were received for trial at Wisley in 1959. The trial was sown on May 21, 1959, in drills 1½ inches deep and 2 feet apart; the individual beans were spaced 4½ inches apart in the drills. To control bean seed fly (*Delia cilicrura*), the drills were treated before sowing with 1½ per cent Aldrin dust at the rate of 1 ounce per 10 yard run of drill. After germination the seedlings were thinned to 9 inches apart.

The trial was inspected by a sub-committee of the Fruit and Vegetable Committee on August 6, 1959, and on its recommendation the Council has made the following awards to dwarf pencil-podded and stringless beans.

The number in brackets after the description of the variety was that under which it was grown in the trial.

EXTENDER. (Raised by Dr. J. C. Hoffman, South-eastern Vegetable Breeding Laboratory, Box 3348, St. Andrews Branch P.O. Charleston, South Carolina, U.S.A.; introduced and sent by Messrs. Corneli Seed Co., 101 Chouteau Avenue, St. Louis 2, Missouri, U.S.A.) **F.C.C.** August 6, 1959. Plant 15 to 16 inches high, very erect, little-branched, very productive; foliage dark green; pods 6½ to 6¾ inches long, ½ inch wide, medium green, straight, concave near point, oval to round, borne in large compact clusters averaging 5 pods to a cluster; ripe seed black. [45]

IMUNA. (Raised and introduced by Dr. Rudolf Schreiber, and sent by Messrs. Corns. van Beusekom, Utrecht, Holland.) **A.M.** August 6, 1959. Plant 12 to 14 inches high, erect, much branched, very productive; foliage

dark green; pods 5½ to 6 inches long, ⅝ inch wide, light to medium green, straight, concave near point, round, borne in fairly small compact clusters averaging 4 to 5 pods to a cluster; ripe seed white. [15]

LA REINE. (Raised, introduced and sent by Messrs. Rasharasha Estate Ltd., Arusha, Tanganyika Territory, British East Africa.) **A.M.** August 6, 1959. Plant 13 inches high, slightly spreading, much branched, very productive; foliage dark green; pods 5½ to 6 inches long, ⅜ to ½ inch wide, light to medium green, straight, concave near point, oval to round, borne in large loose clusters averaging 5 to 6 pods to a cluster; ripe seed white. [11]

MASTER. (Raised, introduced and sent by Messrs. J. E. Ohlsens Enke, Linnésgade 14, Copenhagen, Denmark.) **A.M.** August 6, 1959. Plant 15 inches high, very erect, branched, very productive; foliage dark green; pods 5½ to 6 inches long, ⅝ inch wide, light to medium green, straight, concave near point, round, borne in fairly small compact clusters averaging 5 to 6 pods to a cluster; ripe seed white. [22]

TENDERCROP. (Raised by Dr. W. J. Zaumeyer, Agricultural Research Service, Crops Research Division, Beltsville, Maryland, U.S.A.; introduced and sent by Messrs. Corneli Seed Co.) **A.M.** August 6, 1959. Plant 18 to 20 inches high, very erect, branched, very productive; foliage dark green; pods 6 to 6½ inches long, ½ inch wide, medium green, straight, concave near point, round, borne in fairly large compact clusters averaging 5 to 6 pods to a cluster; ripe seed purplish brown mottled with light brown. [40]

TOPCROP. (Sent by Messrs, Charles Sharpe & Co. Ltd., Sleaford, Lincs.; Messrs. Hurst & Son Ltd., Kelvedon House, 60/64 Artillery Lane, London, E.1, and Messrs. Sluis Bros. (East Africa) Ltd., P.O. Box 350, Arusha, Tanganyika, East Africa.) **A.M.** August 6, 1959. Plant 15 inches high, slightly spreading, much branched, very productive; foliage dark green; pods 6½ to 6¾ inches long, ⅝ to ½ inch wide, medium green, straight, concave near point, round, borne in fairly large compact clusters averaging 4 pods to a cluster; ripe seed dark brown speckled coffee brown. [30]

AMETHYST. (Raised, introduced and sent by Messrs. C. Beemsterboer Pty. Ltd., Beemsterpad 1–3, Warmenhuizen, Holland.) **H.C.** August 6, 1959. Plant 16 inches high, compact, erect, little branched, productive; foliage dark green; pods 5½ inches long, ⅝ inch wide, medium green, straight, concave near point, round, borne in large loose clusters averaging 4 pods to a cluster; ripe seed white. [14]

CORNELI WHITE-SEEDED BUSH. (Raised, introduced and sent by Messrs. Corneli Seed Co.) **H.C.** August 6, 1959. Plant 19 inches high, very erect, little branched, productive; foliage dark green; pods 7 inches long, ½ inch wide, medium green, straight, concave near point, round, borne in large loose clusters averaging 4 to 5 pods to a cluster; ripe seed white. [16]

DOBIE'S GREENFEAST. (Raised, introduced and sent by Messrs. Samuel Dobie & Son Ltd., 11 Grosvenor Street, Chester.) **H.C.** August 6, 1959. Plant 15 inches high, erect, compact, little branched, productive; foliage dark green; pods 6 inches long, ½ inch wide, medium green, straight, concave near point, oval, borne in large loose clusters averaging 4 pods to a cluster; ripe seed white. [10]

GREEN CLUSTER. (Raised, introduced and sent by Messrs. Ferry-Morse Seed Co., P.O. Box 967, Mountain View, California, U.S.A.) **H.C.** August 6, 1959. Plant 18 inches high, erect, little branched, productive; foliage dark green; pods 5 inches long, ⅝ inch wide, medium green, straight,

concave near point, oval, borne in large loose clusters averaging 4 pods to a cluster; ripe seed white. [19]

PRELUDE. (Raised by Vreeken Dordrecht, introduced and sent by Messrs. Sluis Brothers Ltd., P.O. Box 22, Enkhuizen, Holland.) **H.C.** August 6, 1959. Plant 12 inches high, very compact, much branched, productive; foliage dark green; pods 4 inches long, $\frac{5}{8}$ inch wide, light to medium green, curved forward, round, borne in small, compact clusters averaging 3 to 4 pods to a cluster; ripe seed white. [7]

SATURNUS. (Raised, introduced and sent by Messrs. Wed. P. de Jongh Ltd., Frans de Hollanderlaan 25, Goes, Holland.) **H.C.** August 6, 1959. Plant 17 inches high, slightly spreading, branched, very productive; foliage dark green; pods 5 inches long, $\frac{5}{8}$ inch wide, medium green, straight, concave near point, round, borne in small compact clusters averaging 3 to 4 pods to a cluster; ripe seed white. [18]

TENDERLONG STRINGLESS. (Raised and introduced by Associated Seed Growers Incorporated, and sent by Messrs. Charles Sharpe & Co. Ltd.) **H.C.** August 6, 1959. Plant 18 inches high, slightly spreading, branched, productive; foliage dark green; pods 6½ inches long, $\frac{3}{8}$ inch wide, medium green splashed and flecked purple, straight, concave near point, oval, borne in large compact clusters averaging 6 pods to a cluster; ripe seed very dark brown mottled with light brown. [41]

TOPMOST IMPROVED. (Raised and sent by Messrs. Rasharasha Estate Ltd.) **H.C.** August 6, 1959. Plant 17 inches high, slightly spreading, branched, productive; foliage medium green; pods 6½ inches long, ½ inch wide, light green, slightly curved forward, round, borne in fairly small compact clusters averaging 4 pods to a cluster; ripe seed white. [12]

IPOMOEAS

Nine stocks of ipomoeas were received for trial at Wisley in 1959. The trial was sown under glass on April 7, 1959. The resulting seedlings were finally potted into 8-inch pots, three plants being planted to each pot. Nine pots, twenty-seven plants, of each stock were grown. The plants were placed in a cool glasshouse for flowering. Hazel sticks were used to support the plants in the pots.

The trial was inspected by a sub-committee of the Floral Committee A on July 3 and 23, and August 28, 1959, and on its recommendation the Council has made the following award to an ipomoea.

The number in brackets after the description of the variety was that under which it was grown in the trial.

Ipomoea rubro-coerulea

HEAVENLY BLUE. (Sent by Messrs. D. T. Brown & Co. Ltd., Poulton-le-Fylde, Lancs.; Messrs. W. Atlee Burpee Co., Hunting Park Avenue, at 18th Street, Philadelphia 32, Pa., U.S.A.; Messrs. Samuel Dobie & Son Ltd., 11 Grosvenor Street, Chester; Messrs. Hurst & Son Ltd., Kelvedon House, 60/64 Artillery Lane, London, E.1; Messrs. Nutting & Sons Ltd., Merstham, Surrey, and Messrs. Watkins & Simpson Ltd., 26/29 Drury Lane, London, W.C.2.) **A.M.** July 3, 1959. Plant 6 to 7 feet high, vigorous, very free-flowering; stems slender, medium green tinged reddish brown; foliage medium size, cordate-shaped, medium green. Flowers 4 inches diameter, borne in clusters of 7 to 8, a slightly deeper shade of Spectrum Blue (H.C.C. 45/1), throat white. [1, 2, 3, 4, 5 and 6]

FELLOWS WISHING TO OBTAIN PLANTS RARE IN CULTIVATION

Davallia canariensis *Davallia bullata*	Mrs. E. M. Clemence, "Haslemere", Chil Bridge Road, Eynsham, Oxford.
Dendrobiums: old *nobile* type hybrids, named varieties of hybrids and named varieties of *D. nobile*	Peter Smithers, M.P., 30 Smith Square, London, S.W.1.
Alstroemeria hookeri *Alstroemeria pygmaea* *Alstroemeria haemantha* *Corydalis transylvanica* *Orchis foliosa* *Paeonia clusii*	E. S. Smith, Ravensdown, 46 Archers Road, Southampton.
Phormium tenax alpinum atropurpureum *Vinca minor alboplena* *Astrantia minor*	Rowland Jackman, George Jackman & Son, Ltd., Woking, Surrey.

PLANTS TO WHICH AWARDS HAVE BEEN MADE IN 1959

OCTOBER AND LATE-FLOWERING CHRYSANTHEMUMS

Chrysanthemum 'Monica Winterton' F.C.C. December 1, 1959, as a variety for show purposes. A fine yellow medium exhibition variety. Described in detail in the R.H.S. JOURNAL, August 1959. Shown by Messrs. H. Woolman Ltd., Shirley, Birmingham.

Chrysanthemum 'Amber Light', A.M. November 10, 1959, as a variety for show purposes and cutting for market. Section 6a, large flowered incurving decorative, light bronze. Flowers 5½ inches in diameter; florets long, broad, distinct and pointed; inner florets incurved, Lemon Yellow (H.C.C. 4), outer florets incurving, Straw Yellow (H.C.C. 604). Shown by Mr. H. V. Cartwright, New Dove House Nursery, Hatch End, Middx.

Chrysanthemum 'Ben Woolman', A.M. November 6, 1959, as a variety for show purposes. Section 3, large exhibition incurving, yellow. Flowers 8½ inches in diameter; florets long, broad, channelled. distinct, pointed. Inner florets incurved, outer florets incurved. Colour Primrose Yellow (H.C.C. 601/2) with deeper reverse. Shown by Messrs. H. Woolman Ltd.

Chrysanthemum 'Cavalcade', A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 5a reflexed decorative, red. Flowers 6¼ inches in diameter. Florets long, narrow, quilled, pointed, distinct. Inner florets recurved; outer florets recurved; Currant Red (H.C.C. 821) in colour. Shown by Messrs. H. Shoesmith Ltd., Mayford Nurseries, Westfield, Woking, Surrey.

Chrysanthemum 'Diplomat', A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 6a, large incurving decorative, white. Flowers 5¼ inches in diameter. Florets long, narrow, channelled, overlapping, blunt. Inner florets incurved, outer florets incurved. Shown by Messrs. H. Shoesmith Ltd.

Chrysanthemum 'Flame Symbol', A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 5a, large flowered, reflexed decorative, red. Flowers 6 inches in diameter. Florets long, narrow, quilled, distinct, pointed. Inner florets recurved; outer florets recurved. Saturn Red (H.C.C. 13/1) in colour with Saffron Yellow (H.C.C. 7/2) reverse. Shown by Messrs. H. Woolman Ltd.

Chrysanthemum 'Joseph Ryder', A.M. October 27, 1959, as a variety for show purposes and cutting for market. Section 16b reflexed, medium flowered, light-bronze. Flowers 5 inches in diameter. Florets short, narrow, distinct, quilled, pointed. Inner florets incurved, outer florets recurved. Nasturtium Orange (H.C.C. 6/10) in colour. Shown by Mr. Frank Rowe, Ryelands, Nurseries, Wellington, Somerset.

Chrysanthemum 'Lady Leese'. A.M. November 6, 1959, as a variety for show purposes. Section 2 large exhibition, pale pink. Flowers 10 inches in diameter, florets long, broad, quilled, pointed, distinct. Inner florets recurved; outer florets recurved. Colour very pale pink. Shown by Messrs. H. Woolman Ltd.

Chrysanthemum 'Magna Carta', A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 1a, large flowered exhibition incurved, pink. Flowers 5½ inches in diameter. Florets long, narrow, channelled, overlapping, pointed. Inner florets incurved, outer florets incurved. Colour Persian Rose (H.C.C. 628/3) with Rose pink (H.C.C. 427/3) reverse. Shown by Messrs. H. Woolman Ltd.

Chrysanthemum 'October Dazzler' A.M. October 27, 1959, as a variety for cutting for market. Section 16b, reflexed medium flowered, red. Flowers 4½ inches in diameter. Florets short, narrow, quilled, pointed, distinct. Inner florets recurved, outer florets recurved. Blood Red (H.C.C. 820/1) in colour. Shown by Mr. Frank Rowe.

Chrysanthemum 'Oporto' A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 1b, medium flowered exhibition incurved, light bronze. Flowers 5 inches in diameter. Florets short, narrow, curled, overlapping, pointed. Inner florets incurving, outer florets incurving. Jasper Red (H.C.C. 0/18) flecked yellow, with Barium Yellow (H.C.C. 503/3) reverse. Shown by Messrs. H. Shoesmith Ltd.

Chrysanthemum, 'Pioneer', A.M. November 6, 1959, as a variety for show purposes and cutting for market. Section 5a, large flowered reflexed decorative, light bronze. Flowers 6 inches in diameter. Florets long, narrow, quilled, pointed, distinct. Inner florets recurved; outer florets recurved. Mars Orange (H.C.C. 013) in colour, with Indian Yellow (H.C.C. 6/2) reverse. Shown by Mr. H. V. Cartwright, New Dove House Nursery, Hatch End, Middx.

BOOK NOTES

"The Families of Flowering Plants . . . arranged according to a new System based on their probable Phylogeny." By John Hutchinson. Second edition. 2 volumes. 8vo. xvi + x + 792 pp. Illus. (Oxford University Press, 1959.) £7 7s. 0d.

The plant world as portrayed in Hutchinson's comprehensive *Families of Flowering Plants* presents in detail a very different picture from what it did to Pierre Magnol in 1698 when he proposed that plants should be classified into groups which he called *familiae plantarum*, "en diverses familles comme on range les animaux", according to "une certaine similitude qui ne consiste pas dans les parties considérées séparément, mais en total". Magnol and other pre-Linnaean botanists made a primary distinction between herbaceous plants and woody plants. For the past two centuries this has been held against them as a major defect of their systems on the ground that it arbitrarily separated plants agreeing in many other characters. Magnol's scheme, based upon the wild and cultivated plants of southern France, certainly seems very naïve now. Nevertheless it is to such pioneer efforts, through the works of Linnaeus, Adanson, A. L. de Jussieu, Robert Brown, De Candolle, Lindley, Endlicher, Bentham and Hooker, Engler and Prantl, Bessey and others, that one may trace back Hutchinson's present world-wide survey, which, as far as the Dicotyledons are concerned, starts off with their separation into fundamentally woody and fundamentally herbaceous groups.

This new edition, like its predecessor, is in two volumes. The first edition of Volume 1, published in 1926 and covering the Dicotyledons, divided them into 264 families. The first volume of the second edition divides them into 342 families. This by itself indicates extensive revision and enlargement, in fact 198 more pages and 80 more illustrations. Part of the increase is due to greater knowledge of the groups concerned, e.g. of the *Scyphostegiaceae*, part to the discovery of genuine new families, e.g. *Medusandraceae* and *Rhoipteleaceae*, part to the incorporation of keys to genera lacking in the first edition, and part to a change of attitude leading to the division of *Loganiaceae* and *Saxifragaceae*, for example, into many smaller families. Whatever may be thought about the merits of such changes, this new edition clearly manifests the author's abiding enthusiasm and elasticity of mind over the last thirty-three years. Certainly his many alterations and additions will make it necessary for all who profited from the old edition to acquire the new one, if they can afford it: the original edition cost £2; this costs £7 7s.! They will learn much and get more than a few shocks.

The first edition was received with mingled feelings of admiration for its comprehensiveness and utility, surprise at its unorthodox innovations and regret for its errors and deficiencies. The second will have the same reception. Its first volume contains an introduction comparing the systems of Bentham and Hooker, Engler and Prantl, and the author, a short historical chapter (which does not mention Magnol), a statement of principles, a key, an inconveniently placed index (on pp. 101–103) and then the descriptions of orders and families. Comparison with the first edition reveals many improvements. Thus under each order there is now a key to the included families and for good measure a key to genera is given under many families. Some illustrations have been replaced, e.g. under *Labiatae*, *Selaginaceae* and *Acanthaceae*, and extra ones added, e.g. under *Compositae*, though the misleading figure of *Adoxa* (p. 466) has escaped replacement. The addition of new information is well exemplified by the account of *Scyphostegiaceae*. All this is very welcome and helpful.

The most far-reaching and upsetting differences between the treatment of the Dicotyledons in the two editions arise from the author's conviction, intensified over

the years, that families predominantly or exclusively woody and families predominantly or exclusively herbaceous terminate lines of evolution which have been distinct from the beginning of the differentiation of the angiosperms. Hence, as stated by Hutchinson, "no longer are *Magnoliaceae* and *Ranunculaceae—Rosaceae* and *Saxifragaceae—Araliaceae* and *Umbelliferae—Myrsinaceae* and *Primulaceae*—or even *Verbenaceae* and *Labiatae*, ranged next or even near each other, but are placed far apart, in the belief, rightly or wrongly, that the supposed relationship between these pairs of families is considered to be due to parallel development". Formerly put together on the basis of many resemblances, they are separated here by their hypothetical phylogeny, which may be correctly surmised but is nevertheless highly speculative and unsupported by cogent evidence. Regarding the separation and definition of *Verbenaceae* and *Labiatae*, reference to Junell's "Zur Gynäceummorphologie und Systematik der Verbenaceen und Labiaten" in *Symb. Bot. Upsal.* 1, no. 4 (1934), must suffice to indicate the unsolved problems. Another change is "the distribution of the *sympetalous* (*gamopetalous*) families among their presumed nearest relations with or without petals". It is now generally accepted that the families in other systems brought together in the *Amentiflorae* or *Apetalae* by the lack or reduction of perianth or in the *Metachlamydeae* or *Gamopetalae* by the fusion of petals are not necessarily related but it is very difficult to decide how they should be classified otherwise. As Gilbert-Carter wrote in 1936, "the affinities of these [apetalous] families may be guessed at, but not determined, probably because they have no affinities, worth calling affinities, with any living plants. Any series of such guesses may become the basis of a new system . . . unlikely to demonstrate 'probable phylogeny' and certain to place difficulties in the way of those using floras". Nevertheless we must congratulate Hutchinson on having the courage and knowledge to attempt this redistribution however inconvenient the result. For practical purposes the most useful feature of this volume is the key to the families of Dicotyledons, essentially that of the first edition but with additions and corrections. This probably ranks as the most widely used of Hutchinson's many publications on systematic botany. It should be reprinted, with a few necessary emendations, as a pamphlet for field and laboratory use, as was the one in the first edition.

The first edition divided a number of families, as then generally accepted, into smaller families, e.g. the *Leguminosae* into *Papilionaceae* (*Fabaceae*), *Mimosaceae* and *Caesalpinaceae*. The second edition carries segregation much further, e.g. *Cobaeaceae* is separated from *Polemoniaceae*; *Ehretiaceae* from *Boraginaceae*; *Eremosynaceae*, *Vahliaceae* and *Francoaceae* from *Saxifragaceae*; *Potaliaceae*, *Buddleiaceae*, *Antoniaceae*, *Spigeliaceae* and *Strychnaceae* from *Loganiaceae*; *Paeoniaceae* and *Helleboraceae* from *Ranunculaceae*. Some of these are likely to receive general acceptance. It is unlikely, however, that the separation, for example, of the *Podophyllaceae*, as defined here, from *Berberidaceae* will commend itself. One cannot but feel that a more consistent treatment would have led Hutchinson either to maintain intact some families here divided or to accept some families of other authors here ignored or rejected, e.g. *Cassythaceae*, *Dichondraceae*, *Thunbergiaceae*, *Mendonciaceae*, *Avicenniaceae*, etc., for they seem as well or as badly founded as many he adopts. Every specialist can probably find a few minor errors in a book of this magnitude and importance. Thus Hutchinson's *Podophyllaceae*, i.e. the herbaceous *Berberidaceae*, is described as having "leaves . . . 2–3—foliolate", but several species of *Epimedium* and *Vancouveria* have 9 leaflets and one (*E. elatum*) has 50 or more leaflets. *Achlys* is not confined to Pacific N. America but occurs also in Japan. *Aceranthus* cannot properly be separated from *Epimedium*. These errors are unfortunate but in no way diminish the justice of Lincoln Constance's description in 1955 of Hutchinson's *Families* as "among the most useful and stimulating reference books on systematic botany".

Compared with the first volume of the new edition, the second volume is a grievous disappointment. As stated in the preface, "except for the addition of one new family *Cartonemataceae* Pichon and a number of genera described since the original publication, little alteration has been made to this second volume dealing with Monocotyledons". This is all too true. The decision to issue Volume 1 drastically revised but Volume 2 scarcely altered from its 1934 state could be justified only on the assumption that, having waited some twenty years for a new edition, botanists could not endure the hardship of waiting two or three years longer or else that Volume 2 required no amendment. Both these assumptions are false. Eight years passed between the publication of the original Volumes 1 and 2, and a gap of, say, two years now would have caused no great inconvenience. Detailed study of genera and species since 1934 has resulted in many revisions and better definitions, as well as changes of nomenclature, which should have been evaluated in this volume. As examples of such ignored relevant

publications may be mentioned that of Dandy and Tandy on *Cymodocea* and *Syringodium* in *J. Bot.* (*London*), **87** : 114 (1939); Woodson on *Commelinaceae* in *Ann. Missouri Bot. Gard.* **29** : 141–154 (1942); Brenan on *Commelinaceae* in *Kew Bull.* **1952** : 179–208; Rohweder on *Commelinaceae* in *Univ. Hamburg Abh. Geb. Auslandsk.* **61** : 98–178 (1956); Chouard on *Scilleae* in *Ann. Sci. Nat. Bot. X*, **13** : 287–295 (1931); Buxbaum on *Calochorteae* in *Beitr. Biol. Pflanzen*, **34** : 450 (1958); Hylander on *Hosteae* in *Acta Horti Berg.* **16** : 339 (1954); Sealy on *Nomocharis* and *Lilium* in *Kew Bull.* **1950** : 278; Stearn on *Allium*, *Ipheion* and *Brodiaea* in *Gard. Chron. III*, **114** : 60 (1943); E. H. Moore on *Milla*, etc., in *Gentes Herb.* **8** : 260 (1953), etc. One looks in vain for *Phaeosphaerion*, *Tripogandra*, *Syringodium*, *Phaiophleps*, *Dandya*, *Petronymphe*, *Ipheion*, *Carduocrinum*, *Endymion*, *Hyacintheila*, etc. Matters requiring correction are numerous. Thus the inflorescence of the *Hemerocallideae* is described as "usually racemose or paniculate", but *Hemerocallis* itself well displays the cymose type called a bostryx; *Hosta*, in which the inflorescence is racemose, also differs so much in leaf, flower-colour, seed and chromosome-number as to be better placed in another tribe, the *Hosteae*. The illustration of *Hemerocallis flava*, i.e. *H. lilioasphodelus*, is incorrect as regards the inflorescence. *Paradisia* does not occur in Tibet (cf. *Kew Bull.* **1950** : 421). *Ophiopogon* has been conserved against *Mondo* since 1940 (cf. *Kew Bull.* **1940** : 94). *Astroloba* is not a synonym of *Aloe* but is the correct name of the genus here called *Apicra*. Similar criticisms could extend for several pages. They are mentioned here only to indicate the extent of the opportunity which the author and publishers have lost, and the disservice they have occasioned, by the premature publication of Volume 2 of this important, stimulating, exasperating and most useful work. The printing is as good as the price is appalling. The text is most helpfully supported by the numerous illustrations, one or more for each family. Many of these have been drawn by Hutchinson himself and well display his versatility and skill as an artist; in this may perhaps be found the clue to the virtues and weaknesses, the insight, originality and inconsistency of this work; although its demerits are likely to prevent its acceptance as a textbook, its many good qualities make it a highly interesting and valuable contribution to systematic botany.

W. T. STEARN

"Circumpolar Arctic Flora." By Nicholas Polunin. Pp. xxviii + 514. Illus. (Oxford: Clarendon Press; London: Oxford University Press.) £6 6*s.* 0*d.*

In fairness to the author, I would earnestly counsel readers to leave off studying the introduction to this handsome volume until they have examined the main body of the text. The book is, in fact, a relatively straightforward and lucid taxonomic account of the flowering plants and vascular cryptograms occurring in the Arctic, lavishly illustrated, with keys to families, genera and to the larger groups of species, and ample descriptions embodying (in addition to morphological analyses) notes on ecology and geographic distribution. But Dr. Polunin has contrived an introduction of such infinite obscurity and complication that one must suppose he sought the advice of a Philadelphia lawyer before penning it. This being said, let me commend the volume to those gardeners and botanists who, like myself, have a particular respect for plants which can survive, flower and set seed under conditions which have to date almost defeated human resourcefulness. And I respect some of these Arctic plants all the more because they refuse to be coddled, but sulk and perish almost as soon as they are removed from their icy wastes to a more clement environment. Moreover, having shown that they will not put up with gardens and gardeners, many of them then proceed to wipe the taxonomists' eyes, mutating, segregating, combining and deviating until they have reduced herbaria and herbarium techniques to pitiful disorder. This determined refusal to be classified and labelled is apparent on almost every page of Dr. Polunin's elaborate study—every fateful reference to "agg." or "sens. lat." is virtually an admission of taxonomic defeat, and there are no doubt some who will hold it against the author that he did not pursue and worry these difficult plants until they finally revealed their status and affinities. But if the monument to such scholarly perseverance is merely a pile of Jordanons, microspecies, subspecies and varieties then we should be grateful that Dr. Polunin chose the easier course and was content to admit to a "general 'lumping' tendency" in his work. What is less praiseworthy is his laxity with regard to the citation of plant names: in many instances names are cited without any reference to authorities, and where both taxonomy and synonymy are intricate or controversial the omission of authorities is bound to add to existing confusion and detract from the taxonomic value of the book. It is unfortunate that more

pains were not taken to avoid this criticism of an otherwise interesting and attractive work.

R. D. MEIKLE

"Favourite Flowers." By Constance Spry. Cr. 4to. 209 pp. Illus. (Dent & Sons Ltd.) 42*s*.

Among the various excellent books produced by Mrs. Spry this must surely rank as one of the most charming, attractive and stimulating. She writes with enthusiasm and conveys this to the reader, while her choice of favourite flowers is one of great and yet far-ranging discrimination. As she says, "The title, *Favourite Flowers*, opens pleasantly wide doors and within its freedom I have roamed as I please". This sums up the book well. The illustrations of her flower arrangements are equally attractive and I particularly liked the simple little vase of erythroniums, auricula and *Fritillaria acmopetala* used on the cover against a black background. The final pages of the book give a list of suppliers of many of the less common plants mentioned.

PATRICK M. SYNGE

"Small Fruits for your Home Garden." By Dr. J. Harold Clarke. 8vo. 372 pp. Illus. (Doubleday, Garden City, New York, U.S.A.) $4.95.

This book deals with the fruits which we usually describe as soft fruits as opposed to the tree or top fruits such as apples, pears, plums and cherries. In addition, it includes a number not usually grown in this country but which still might be worth more trial, such as blueberries and cranberries. The chapter on blueberries is of particular interest in view of the exhibit of these fruits recently seen in the R.H.S. Hall. Grapes grown outdoors are also included. The varieties described are for the most part quite different from those grown in this country but nevertheless the discussion of methods of cultivation and of frost protection should be of interest to growers in this country, while to amateur and even professional growers in U.S.A. it should be of great use as it is clear and authoritative but yet easy to read and even stimulating.

PATRICK M. SYNGE

"The Iris." By N. Leslie Cave. 2nd Ed. Demy 8vo. 240 pp. Illus. (Faber and Faber.) 36*s*.

The writer of this book has not forgotten those early struggles which all specialists in a particular genus experience in the early days of their chosen pursuit.

Further, his enthusiasm is unabated, and comes through in his writing. So, with his characteristically easy and persuasive style, he has written a book of the greatest value to those enthusiastic beginners who have been sufficiently captured by irises to spend the cost of this volume. Here it may be said that, considering present-day prices, and the fact that when the beginner has become knowledgeable he will still cherish this book as a useful work of reference, its cost is not over-high.

Moreover, this book will be read with interest by the already-expert, who is quite likely to find here something which he did not know, and a lot more which he may earlier have known but which has since slipped his memory, either in fact or in significance.

This second edition is not merely a good book brought up to date in the light of the developments in the breeding of irises which have occurred since the first edition appeared in 1950. In fact four entirely new chapters appear.

The most important is one dealing with recent developments in the breeding of dwarf bearded irises and of the hybrids which are intermediate between these and the tall-bearded ones. Among the most outstanding developments in recent years are the increased brilliance of colour and the widened range of hue that have been introduced into these categories, which are so effective both as rock-garden subjects and as edging plants.

Two new chapters have been added dealing in a stimulating manner with the story of the recent breeding of tall-bearded irises in Britain, the United States of America, and New Zealand; and another new one discusses the important matters of floriferousness and of sturdiness and vigour in growth.

There are many instances where the first edition has been expanded, examples being: a list of parentages is offered to those who are interested in the study of iris genealogy, and the list of recommended irises, arranged under different colours, has not only been brought up to date but has been considerably expanded.

The first edition by no means neglected iris species, but here again more is said of them, and more space has been devoted to those excellent garden subjects, the hybrids of *I. sibirica* and *I. sanguinea*.

All the old illustrations are retained, and ten new ones have been added (two of which are in colour) making 34 in all, in addition to 23 excellent line drawings which occupy ten pages.

H. SENIOR FOTHERGILL

"Polythene Film in Horticulture." By H. R. Spice. Demy 8vo. 176 pp. Illus. (Faber & Faber.) 18*s*.

The trite saying that "there is nothing new in horticulture" is contradicted today by the uses made of plastics in one form or another in the garden. Plastics are quite new. One material, polythene film, was first manufactured in 1938, yet after only twenty years—a short period in an old profession—it touches almost every aspect of horticultural work from the earliest stages of propagation to the final packing of both flowers and fruit. Its rapid acceptance as one of the most widely used tools in horticulture has enabled Mr. Spice to produce this very interesting and informative book.

Mr. Spice has been concerned for many years with the development and commercial uses of polythene film in this country and has used his wide experience in pointing out in his book, both the advantages and snags one meets when using it for horticultural purposes. And there are many in both directions.

The book contains twelve well-illustrated chapters describing polythene film and its uses and an appendix dealing with its technical properties. The most important use of the film so far is the lining of glasshouses and many pitfalls in this direction could be avoided by a careful study of the chapter dealing with this subject. Other chapters deal with the building of plastic greenhouses, the uses of polythene film in plant propagation, irrigation, ventilation and heating of greenhouses.

This book should be in the hands of every amateur, professional and commercial grower. There can be very few indeed engaged in any sphere of horticulture, who will not enjoy reading it, or benefit a great deal from making use of the information it contains. One can only feel sorry for the author who, acknowledging the limitations set by experience of the use of such a new substance, will go on re-writing this volume for the rest of his life. New uses seem to be found for it every day and new formulations too will no doubt extend its use in many directions.

The book is well indexed and references for further study are freely given. One hopes in future editions for a more extended chapter on propagation with the aid of polythene film and for clearer printing of a few of the many illustrations.

J. NEWELL

"In Your Garden with Percy Thrower." Demy 8vo. 158 pp. Illus. (Collingridge.) 15*s*.

This book is arranged by weeks and months and discusses the main garden operation with regard to flowers, fruit, vegetable and greenhouse. It is illustrated by numerous practical photographs demonstrating most of the main garden operations and these are very clear. Any gardener is likely to make a success who starts out with Mr. Thrower's opening words, "Gardening is a joy to me". His book, like his programmes, is likely to be popular. Many of these notes and hints have already appeared in the author's weekly notes in *Amateur Gardening*, but, nevertheless, readers will be glad to have them in book form.

"Desert Plants, Cacti and Succulents in the wild and in cultivation." By Oliver and Margaret Leese. 220 pp. Illus. (Collingridge). 30*s*.

The use of plant distribution maps as end papers might suggest that this is a scientific treatise on desert plants but that is not intended; rather is it in the nature of a guide book whose object is to display the attractiveness of succulent plants to those who have not yet succumbed to their charms. It is a personal account of the desert regions that the authors have visited, chiefly Arizona and Mexico in North America and the Karoo in S. Africa and the descriptions are vivid and amusing; the cactus regions of South America, from which many interesting plants come, are not mentioned nor the home of so many South African mimicry plants, South West Africa. The accounts of famous gardens in Europe and abroad, where succulent plants can be grown out of doors, are interesting and useful to anyone able to visit them. The section on cultivation is personal rather than general and follows the methods adopted in commercial establishments where the object is to bring plants on quickly; the temperatures advocated are, on the whole, too high for the amateur grower and quite

unnecessary, if not actually deleterious, for cacti resting during the winter. In the last section is given a selection of cacti and succulents designed to show the wide variety of plants available. In some cases the cultural directions are not in conformity with general practice and there are errors in names and descriptions; thus, *Crassula rupestris* "with small yellow flowers" must be *C. nealeana* and, though *Crassula columnaris* certainly dies after flowering, it takes several years to reach that stage so can hardly be classed as an annual; the small line drawings give a fair idea of the subjects they illustrate. There are 58 monochrome illustrations and a coloured cover showing Lady Leese in the Karoo but no colour plates in the book, so that the price seems rather high.

VERA HIGGINS

"Deutsche Obstsorten." By H. Krümmel, W. Groh and G. Friedrich. 10 vols. Illus. (Deutscher Bauernverlag, Berlin.) Part IX. 14.60 DM per vol.

The ninth issue contains descriptions of apples, pears, plums, walnuts and the cherry 'May Duke'. The apples include 'Jonathan', 'Antonovka', the well-known Russian variety, parent of many sports and varieties, and a russet ('Zabergäu'), which is now thought to be the same as 'Canada Gris'. The pears include 'Beurré Hardy', known in Germany for more than a hundred years as 'Gellert'. Besides being a desirable dessert pear it is used as in intermediate for varieties incompatible with quince. Its short season, normally lasting less than a fortnight, can now be extended in cold store by six or seven months. The most familiar of the plums described is the Green Gage, represented here by 'Grosse Grüne Reneklode', regarded as the most widely grown of the many forms of the old green gage. The two walnuts are very recent German introductions. Neither has yet been thoroughly tested but both appear promising and are capable of self-pollination, although, as with all fruits, cross pollination is to be preferred.

J. M. S. POTTER

"Bilder-Flora der Sudalpen Gardasee zum Comersee . . ." H. Pitschmann & H. Reisigl. 278 pp. Illus. (G. Fischer Verlag.) DM. 28.50.

The Bergamask and Judicarian mountains which lie between the lakes of Como and Garda have a particularly fine and interesting flora, including a number of endemic and Mediterranean species. The Cima Tombea, to the west of Lake Garda, and the Monte Baldo range on the east have long been famous to botanists and plant collectors alike. This book, which is in German, sets out to give a description of the plants to be found in this area, and sensibly includes a number of trees and shrubs to be found growing in parks and gardens. Much care and imagination has gone into making it comprehensive and easy to use. There is a key for each genus and species, the local and wider distribution of each plant is given, and synonyms are quoted only when necessary to avoid confusion. Over 170 plants are adequately illustrated in colour and a further 219 in line drawings. There are notes on the geological formation, climate and rainfall, as well as on the history and distribution of the flora. There are, too, suggested excursions with the flowers to be seen on them which should prove particularly useful.

It is unfortunate that the book is too big for the pocket, for any visitor to this area who is interested in plants will want to have it with him.

ELIOT HODGKIN

ORDERS FOR BOOKS

The Society does not sell any publications other than its own. Orders for books reviewed should therefore be sent direct to the booksellers and not to the offices of the Society.

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R.H.S. JOURNAL **83**, pp. 486 and 487. Wisley Trials. Early Culinary Peas 1958, The report for Pea 'Kelvedon Wonder' *should read*: Raised by Messrs. Hurst & Son Ltd., Kelvedon House, 60/64 Artillery Lane, London, E.1.,; introduced by Messrs. W. Deal & Sons Ltd., Kelvedon, Essex, and sent by Messrs. Co-op Zaaizaad-vereniging, West Friesland W.A., Wijdenes, Holland.

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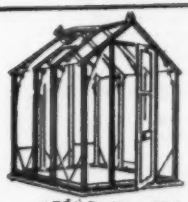

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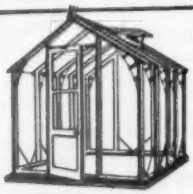

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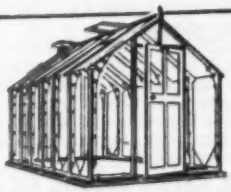

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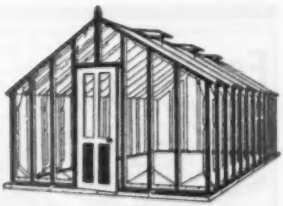

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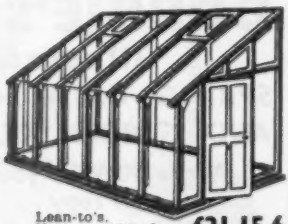

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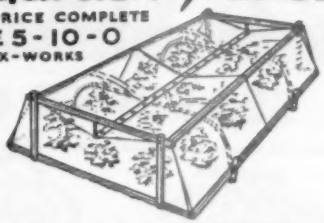

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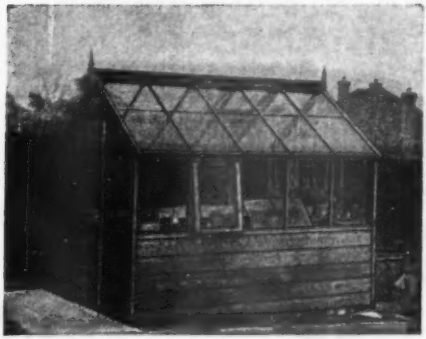

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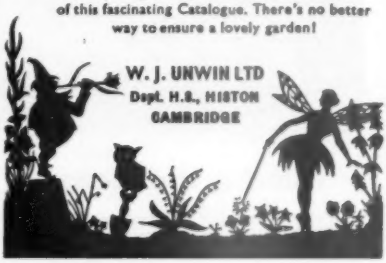

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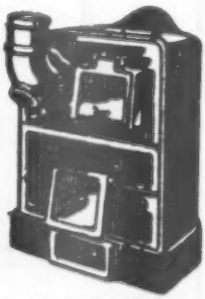

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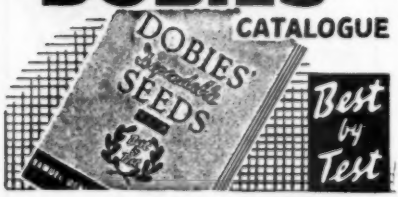

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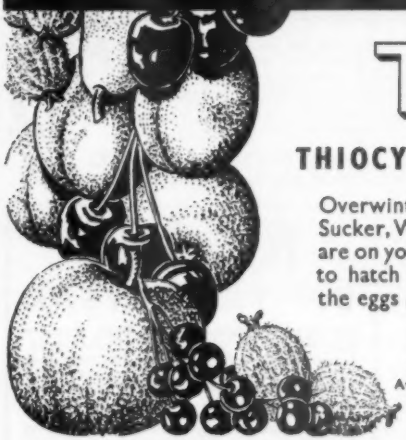

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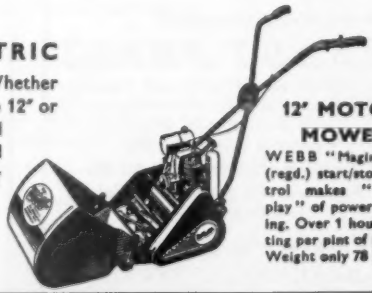

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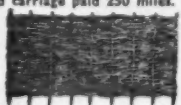

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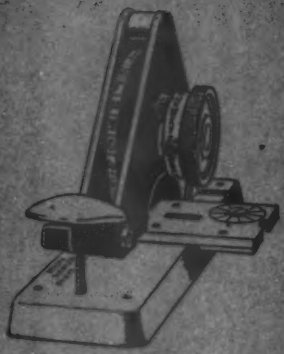

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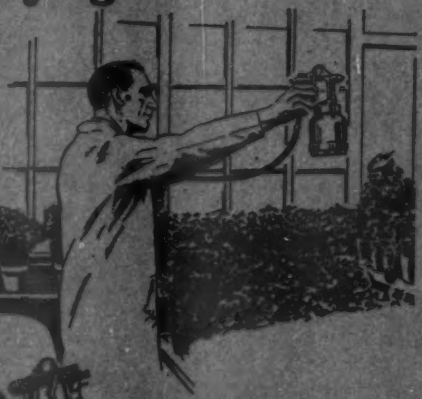

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